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ABSTRACT

In recent years the Graduate Record Examinations (GRE) files have become recognized as a valuable resource for studies of talent flow, but the length and complexity of the files have made it costly to extract the information. A special GRE talent flow database was designed, covering the years 1978 to 1987, with three different structures: (1) an individual examinee file with one record for each subject; (2) a matrix in which rows correspond to intended graduate fields of study and columns correspond to undergraduate majors; and (3) a matrix that collapses the 100 specific major fields into 10 general fields. All three databases are available on computer files for public use, and the matrixes are available in hard copy. Among the many findings is the steady growth in engineering, physical sciences, and mathematics as graduate fields, as contrasted with the decline and subsequent upswing since 1984 of the other broad fields. The common belief that as numbers entering a field decline, student quality rises, and as numbers increase, student quality declines was not supported. Overall, test takers appeared to choose graduate fields in keeping with their relative verbal and quantitative skills. Five appendixes present supplemental information about the data files and their format. Five tables (39 subtables) present study findings. (Contains 23 references.) (SLD)

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RESEARCH

Change in Field of Study from Undergraduate to Graduate School: Creation of a GRE Data Base for Studying Talent Flow

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GRE Board Professional Report No. 86-12P
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Jerilee Grandy
and
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GRE Board Report No. 86-12P

April 1992

This report presents the findings of a
research project funded by and carried
out under the auspices of the Graduate
Record Examinations Board.

Educational Testing Service, Princeton, N.J. 08541

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Abstract

In recent years the Graduate Record Examinations (GRE) files have become recognized as a valuable source for studies of talent flow. When test takers register to take the GRE, they complete a background questionnaire that asks, among other things, their undergraduate major field and their intended field of graduate study. With this information, along with subsequent test scores, grades, parents' education, age, gender, ethnic group, citizenship, and other variables, we are able to examine patterns that relate major field choices, and changes in those choices, to background data and academic ability.

Studies using the GRE files had been costly because of the length and complexity of the files and because of the careful and tedious programming that has had to be done to accommodate the coding changes that took place as the questionnaire was revised over the years. If we were to conduct further talent flow studies using the GRE data, it became clear that we needed a data base designed especially for that purpose.

In this project we designed a special GRE talent flow data base from 1978 to 1987 having three different structures. The first is an individual examinee file in which one record exists for each test taker. The record is short and identically formatted from year to year. The second structure is a matrix in which rows correspond to intended graduate fields of study and columns correspond to undergraduate majors. One hundred major fields are arranged in a rational order. Contained within the cells of the matrices are statistics such as numbers of test takers, mean GRE verbal score, percentage planning to earn a doctorate, numbers of minorities, and so forth. The third matrix structure collapses the 100 specific fields into 10 general fields. All three data bases are on computer files for public use; the matrices are available in hard copy as well.

During the project, we demonstrated some uses of the data base and devoted considerable effort to the design of graphic representations that could clearly express various aspects of talent flow.

Some of the findings from our examples (on U.S. citizens only) were as follows:

- Engineering, physical sciences, and mathematics showed steady growth as graduate fields of study, whereas all other broad fields showed declines through about 1984 and then increases.

- The common belief that as numbers entering a field decline, student quality rises, and as numbers rise, quality declines, was not supported.

- The percentage of examinees over age 30 increased from 15% to 28%; the greatest percentage were in the service professions.

- The percentage of female test takers grew only slightly; physical sciences and engineering showed very little increase in female representation.

- Consistent with the decline in doctorates earned by Black students was the number of Black test takers, which also declined.

- Among test takers with degrees in humanities, and physical, biological, and social sciences, a higher percentage of women than men changed fields for graduate work. Among those in health sciences, education, and business, men were more likely to change than were women.

- Test takers appeared to choose graduate specialties consistent with their relative verbal and quantitative skills, as reflected in their GRE scores: low-scoring students in demanding undergraduate fields appeared to move to less demanding graduate fields, and high-scoring individuals in less demanding fields appeared to move to more demanding ones.

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PART I. TALENT-FLOW DATA BASE DESIGN

BACKGROUND

Reasons for Studying Talent Flow

Higher education is a critical national resource. Success in all of our endeavors, from mathematics to the arts, depends on higher education.

Leadership in science and technology demands that our scientists and engineers create new frontiers of knowledge and lead in the development of technological innovations. At the same time, our survival depends on expanding our awareness and understanding of our relationship with the natural environment so we do not destroy the organism that feeds us. Our economic and political systems are among the most complex in history, requiring ongoing observations and measurements; we monitor countless "indicators" of the health of our society and create theories and prediction models to anticipate progress and foresee catastrophes. The preservation and growth of our culture--its arts, languages, and philosophies, its expressions of what it means to be human--could be lost by a careless shift in educational priorities. The continuing progress of our nation requires well-informed education policymaking and the finest quality teaching. Our scientific, economic, cultural, and political survival depend on higher education.

In their passage through the educational pipeline, students may choose and change direction many times. Their choice of direction at any particular moment depends on many forces--academic skills; influences of family, teachers, and peers; financial resources; satisfaction with courses; perceived rewards of occupations; and anticipated job markets. It is central to the American Dream for each individual to work at an occupation in which he or she experiences fulfillment. Most of us share the belief that by doing so, both the individual and society benefit to the fullest, that is, society maximizes its human resources, and individuals achieve their maximum potential.

When a shortage or surplus of talent occurs in any academic or occupational area, one result is a failure to maximize human resources and individual potential. An oversupply of scientists and engineers in the late sixties resulted in a surplus of talent that was then wasted when people had to be "retooled" for other jobs. The present flow of talent away from nursing into more lucrative and prestigious professions has resulted in a critical nursing shortage. Society at large, as well as the individual who has devoted time and money to education, suffers when there is an imbalance between the supply of trained people and the demands of a profession.

We have used the expression "talent flow" to mean the movement of people having various skills and abilities from one line of endeavor to another. From studies of talent flow, we can monitor changes in the supply of people training for different types of occupations, and we can observe changes in the personal characteristics of students entering specific fields and the kinds of academic preparation they have.

Based on what we report from observation, policy makers, educators, members of the professions themselves, as well as the news media can intervene to provide information to students who are making career decisions. Educators and policy makers can provide improved instruction as well as financial support and incentives. The professions and the news media have the power to alter the image of a profession either to attract or to repel students. The outcome can be changes in the flow of talent--changes having the potential both to improve the student's ability to choose a satisfying career and to improve the utilization of human resources.

Suitable Data Bases

To study talent flow, we must have large, accurate, regularly updated data bases. There are currently a number of data bases containing information on students' plans and aspirations at various times in their academic careers. Some of the more readily available sources include the National Longitudinal Study of the Class of 1972 (NLS), High School and Beyond (HS&B), Scholastic Aptitude Test (SAT) files, the Cooperative Institutional Research Program (CIRP), and the Graduate Record Examination (GRE) files.

The first two of these sources are derived from longitudinal studies of high school students sponsored by the National Center for Education Statistiscs. NLS data collection began with the senior year of the high school class of 1972, and HS&B began with sophomore year data on the high school class of 1980. Both studies continued with additional data collection periodically thereafter.

The Scholastic Aptitude Test (SAT) files of the College Board also provide information on the plans of high school seniors at the time they take the SAT. While this is not a longitudinal data base, followup surveys of students can be conducted. The SAT files can also be matched with the GRE data base at a later time to follow up that subset of students who take both exams. Educational Testing Service (ETS), which administers the GRE, recently created a matched file containing the records of nearly half a million students who took the GRE between 1985 and 1989 and who took the SAT between 1980 and 1986. This very large data base contains all of the information from both the SAT and GRE records, including information from repeated testings. On the average, there are five records for each student.

Even without later student information, the SAT files contain a considerable quantity of background data that can be related to test scores and intended college major. The Student Descriptive Questionnaire (SDQ), which is completed by more than 90% of all students registering to take the SAT, contains a question about intended major field of study as well as many other questions related to background and future plans.

CIRP data, which are collected annually on a large nationwide sample of college freshmen, contain information about student background, interests, aspirations, and values. At present, CIRP is the nation's largest empirical study of higher education, with data on more than eight million students.

As students near completion of their undergraduate work, or at any time following graduation, those who plan to attend graduate or professional school may again change their field of study. Students who take the GRE provide essential talent flow information. The GRE background questionnaire contains two questions having a direct bearing on talent flow. One asks for the student's major field as an undergraduate, and the other asks for the intended graduate field of study. Students make a critical decision when they choose whether or not to enroll in graduate school, and if they do enroll, whether to remain in the same field of study.

The GRE files themselves and the Data Summary Reports produced annually from those files provide a data base for studying talent flow from undergraduate to graduate school.

Studies of Talent Flow

In August 1987, the director of the GRE Program proposed a framework for the study of talent flow to graduate education (Kuh, 1987). She contended that an awareness of the supply of graduate-educated workers is important to government, to industry, and to academia. Among possible research studies she suggested the exploration of early indicators of interest in graduate school through a matched GRE-SAT data base, studies of the effects of labor market and non-economic factors on choices of undergraduate and graduate major, and studies of both foreign talent flow and minority talent flow. As sources, she suggested the NLS data base, High School and Beyond surveys, Astin's college freshmen (CIRP) data, NAEP, and the National Research Council's Survey of Doctorate Recipients, as well as the SAT and GRE data bases.

The GRE Board has since funded a number of studies of talent flow, some based on the GRE files, and some on other data bases. The following studies conducted at ETS highlight some recent research on talent flow funded by the GRE Board as well as other agencies and foundations.

NLS data base. A study entitled Pathways to Graduate School, conducted by Hilton and Schrader (1986), analyzed the NLS data base. Beginning with high school data on the class of 1972, this data base now contains additional follow-up information collected in 1973, 1974, 1976, 1979, and 1986.

HS&B data base. Subsequently, Hilton and Pollack received GRE funding to study talent flow in the 1980 High School and Beyond data base. Their study (Hilton & Pollack, 1989), which compared the HS&B data base with the 1972 NLS data base, showed declines in the percentages of Black males who completed undergraduate school, and particularly in the percentages of high-ability Black males who did so. These declines were seen as particularly troubling and are the subject of another study now in progress.

As a part of the Hilton and Pollack study, GRE scores were retrieved for 370 people in the HS&B cohort. These scores were the subjects of a separate analysis.

SAT data base. In a study funded by NSF, Hilton, Hsia, Solorzano, and Benton (1989) selected a sample of 6,000 high-scoring minority SAT examinees planning to major in math, science, and engineering. They surveyed these students two years after high school graduation and again five years afterward. The results indicated that the high-ability minority students persisted in their science careers at a rate equal to or higher than a comparison sample of high-ability White students.

Grandy has analyzed the SAT files annually for trends in the popularity of various major fields, especially among high-scoring students. The National Endowment for the Humanities (NEH) funded a study of the changing characteristics of prospective humanities majors in which she analyzed trends in the SAT scores and background data on high school seniors taking the SAT and planning to major in humanities (Grandy, 1984a; Grandy & Courtney, 1985).

Grandy found that during the infamous score-decline era, the "quality" of students planning to major in most areas of the humanities was not declining as severely as the overall SAT score. Though a decreasing percentage of students planned to major in the humanities, they tended to be the better students. Allegations that the brightest high school seniors were being drawn into fields like medicine and business appeared not to be true.

Similar studies are being funded biennially by NSF. From those studies we have been able to follow trends in the popularity of all major fields among high school seniors, to observe trends in the test scores of prospective science majors, and to note which fields tend to draw the brightest students (Grandy, 1987, 1989, 1990a).

The information obtained from the SAT files has provided useful indicators of how effectively the professions are attracting talented high school students and how other forces in students' lives are driving them into or away from particular fields. In addition, we are able to see what kinds of academic preparation students have for their chosen fields of interest.

GRE data base. The GRE Board, in addition to other agencies, has funded a number of studies describing the talent flow of GRE takers.

A GRE-funded study by Baird (1982) followed a group of GRE examinees intending to pursue graduate study in four fields. About 1,800 applicants in each of the fields of English, psychology, and education were surveyed, along with about 700 in microbiology. Baird drew samples of examinees intending study in these fields from the 1979-80 GRE administrations and surveyed them about the success of their applications to graduate departments. A follow-up survey requested information on the examinees' satisfaction with, and success in, their respective departments.

Another longitudinal study of GRE examinees is still in progress. Wilder is currently directing a project that was begun in 1987 by Nettles and Wilder as a survey of a small sample of 1986-87 GRE takers on the subject of financial aid. The sample included approximately 900 Black, 900 Hispanic, and 900 other (mostly White) GRE takers from that year. There have been three follow-up surveys since the original financial aid survey, with about 75% of the originally sampled examinees continuing to respond. Examinees who did not enter graduate school have also been retained in the data base. Becaue some of the examinees who entered graduate school soon after taking the GRE were approaching termination of their degree programs, the data base provides information on attendance, persistence, and completion of graduate programs in various program areas.

Based on the first year's data from the Nettles and Wilder study, Grandy (1990b) examined the validity of the GRE background question on intended field of study and found it to be a reasonably valid indicator of the actual field in which the examinee would subsequently be enrolled.

Another GRE talent flow study (Grandy, 1992) just being completed is a survey of a stratified sample of undergraduates who planned to earn bachelor's degrees in math, physical sciences, and engineering and who took the GRE in December 1990. This study will contribute to our understanding of the various factors that distinguish between people who remain in the sciences and those who change into another field.

Back in 1983, the National Endowment for the Humanities (NEH) recognized the value of the information in the GRE data base and funded two projects to study the characteristics of GRE examinees planning graduate work in the humanities. The first of these studies (Grandy, 1984a) compared prospective graduate humanities students with examinees planning studies in other areas, and it analyzed patterns in changes in major field selection from undergraduate to graduate school.

That study required analysis at a more detailed level than what appeared in the Data Summary Reports. The results showed that examinees planning to major in many areas of the humanities at the graduate level did not suffer from a GRE score decline at all, whereas there was a decline among examinees overall. The mean verbal scores of U.S. citizens planning to study foreign languages at the graduate level actually increased from 554 to 561 between 1976 and 1984. It appeared that the "best" students were not leaving the humanities, as some had suspected. These findings were similar for each gender and for each ethnic group studied.

The information from that study was of considerable interest not only to NEH, but to government agencies, universities, foundations that support the humanities, and the academic community at large.

The second study funded by NEH (Grandy & Courtney, 1985) attempted to explain the results of the first study. It suggested that students who discover that they are achieving well above the level of their colleagues may plan to move into a more challenging field. Students feeling that they are less able than their colleagues may choose a less demanding field. But there were other trends, such as a flow of talent out of the humanities, that were not explained by the GRE data alone. Grandy and Courtney concluded that many social and economic explanations offered by the media were only partially true, and in many instances, were completely fallacious. Quite possibly, it was the pseudostatistical information promulgated by the media that was largely responsible for driving students away from the humanities and, to some extent, away from higher education.

Grandy conducted a similar study of the GRE data base for NSF, the results of which were prepared for the NSF publication *Science Indicators*. NSF was especially interested in future science and math teachers--the ones who would have bachelor's degrees in a science or math field and who planned to earn a master's degree in education.

The data showed, perhaps not surprisingly, that among GRE examinees with undergraduate degrees in math, science, or engineering, the mean GRE quantitative scores and mean undergraduate grade point averages of those planning to do graduate work in science areas were considerably higher than the mean scores and grade averages of those planning to study education (Grandy, 1984b). An examinee who has majored in physics but has earned less than exemplary grades in physics and expects to obtain relatively low GRE scores may enroll in a graduate program in education with the intention of teaching physics or a related subject. So long as education is perceived as a default option, it is bound to attract a number of low-scoring, low-achieving students.

Once the GRE data base was recognized as a valuable source for talent-flow studies, representatives of a variety of professions began inquiring about the flow of students into and out of their fields. In a study for the Lilly Endowment (Grandy & Greiner, 1990), for example, it was found that examinees planning to enter the ministry (as inferred from several background questionnaire items) came from a variety of backgrounds, and that those who had majored in religion as undergraduates earned lower average GRE scores than examinees who majored in other areas. Among candidates for the ministry, women earned higher GRE scores than men, and their undergraduate grades were higher. These findings were important to religious leaders, and they confirmed anecdotal information from seminaries.

Design of a Special GRE Talent Flow Data Base

With increasing interest in the GRE data base as a source for talent flow study, it was becoming clear that a special data base for that purpose was called for. The cost of accessing the history files and writing special programs for each project was excessive. Furthermore, many changes had been made in the background questionnaire over the years. Major fields had been recoded several times and the wording of some items had been revised. These changes, especially the changes in major field codes, had led to costly programming errors. If we were to conduct further talent flow studies, it would be highly desirable to design a special data base for that purpose.

Before investing in further studies of talent flow and the design of a special data base, however, it was reasonable to ask how accurately the GRE background question on intended field of study could be taken as an indicator of actual field of study. A survey conducted by Nettles for the GRE Board contained information that enabled us to make estimates of subsequent enrollment patterns of GRE examinees.

From these survey data we were able to infer that only about 56% of the 1986-87 GRE population enrolled in graduate or professional school in the fall of 1987 (Grandy, 1990b). The enrollment rate was highest among those planning to enter the various areas of education (66%) and the physical sciences (65%) and somewhat lower in the combined social and behavioral sciences (50%). But among those who did enter graduate school, 82% were enrolled in a field of study identical to or nearly identical to the one they intended to study when they registered to take the GRE. Only 7% were found to be in areas that were judged to be unrelated or "remotely" related to the planned field of study. Overall, this finding seemed to suggest that the intended field of study question does have reasonably good validity as a predictor of actual field of study.

DATA BASE DESIGN

Years of Data Included

The data base begins with 1978 and ends with 1987, excluding 1979. In 1979, problems in the formatting of the major field questions resulted in erroneous coding of undergraduate major field and intended field of study. For purposes of a talent-flow data base, therefore, 1979 could not be included. Data prior to 1978 had not been retained by ETS, so the oldest data available came from 1978. In 1988, the background questionnaire was revised, and the list of major fields was expanded and modified extensively. Inclusion of data from 1988 onward will be proposed later.

Design Considerations

In designing the data base, we had four major considerations.

First, the cost of access should be as low as possible. Files should be as short as possible, and their layouts simple enough to facilitate easy analysis programming. If all or part of the data base could reside on floppy disks or Bernoulli cartridges, computer processing costs to the user would be eliminated.

Second, major fields of study would have to have consistent codes from year to year, and the code numbers should be ordered to correspond to some rational ordering of major fields. In the questionnaire itself, prior to 1988, there was no apparent connection between a code and the subject it represented.

Third, if one possible structure of the data base suited certain kinds of analyses and another structure suited very different kinds of analyses, we should consider devising two or more data base structures so as to maximize the usefulness of the information.

Fourth, the structure of the data base, as well as analyses generated from it, would require that some major fields be combined. Not everyone would want to analyze data for zoology majors separate from data for majors in other biological sciences. Some rationale had to be devised for combining fields in ways suited to the study of talent flow. The rationale we used is described below, under "Matrices of Broad Areas of Study."

With these considerations in mind, we developed three different structures, each suitable for a different type of analysis.

One structure is a simplified form of the GRE history files, where each record contains the data for one examinee, major fields are coded identically from year to year, and the record formats are the same for each year. The other two data base structures use a square matrix design. These are the simplest structures, in which rows represent intended graduate fields of study and columns represent undergraduate majors. Cells of the matrix contain aggregated statistics for the test takers specifying that particular combination of graduate/undergraduate major. The diagonal of the matrix contains the statistics for people remaining in the same field.

Each of these three data base structures is described in detail below.

The individual examinee data base. The individual examinee data base contains selected information from the GRE background questionnaire in addition to test scores and registration data. Appendix A gives the record layout for that data base. It contains the following information for every test taker in the history files:

Sex
Educational level
Test year
GRE verbal score
GRE quantitative score
GRE analytical score
Background questions:
Whether and when GRE was taken previously
U.S. citizenship (yes or no)
Ethnic identity
Whether English is best language
Year of bachelor's degree
Undergraduate major
Degree objective
Intended graduate major
Undergraduate grade-point-average in major
Overall grade-point-average last 2 years of college
Hours worked for pay while in college
Hours of service work while in college
Area of most important honor or award
Father's formal education
Mother's formal education
Date of birth

Creating this data base required the gathering of documentation--often difficult to find and often containing serious errors or omissions. Minor changes in the background questionnaire over the 10-year period required meticulous attention to whether the documentation actually fit the data files. Some major field choices had been eliminated, for example, because few examinees selected those choices. When fields were eliminated, their code numbers were reassigned to new fields. Often it was only through the tedious reviewing of apparent trends in numbers or test scores that we uncovered errors arising from inadequate or unavailable documentation.

Because there had been changes in major field codes over the years, and because the numbers used for the codes showed little or no pattern that could be associated with the fields themselves, we redefined the codes completely for this data base. The new code numbers begin with 01 designating mathematics. The numbers increase through the physical sciences, engineering, biological sciences, applied biological sciences and health professions, administration, social sciences, applied social sciences, education, humanities, and arts. In total, there are 100 major fields. Number 101 is assigned to "other" fields. The revised codes for all fields are listed in Appendix B.

The individual examinee data base contains no information whereby the examinee or attending institution can be identified. Currently this data base exists only on a tape that can be accessed through the ETS mainframe.

Matrices of detailed major fields. Once the individual-examinee data base was complete, it provided the input for large square matrices. These matrices are 102 rows by 102 columns. The rows correspond to intended graduate fields of study, and the columns correspond to undergraduate major field. Row 102 and column 102 contain marginals.

Each square matrix contains a single statistic, such as mean verbal score, for each combination of undergraduate and graduate field for a single year. Each file contains the matrices for all nine years, arranged sequentially from 1978 to 1987, excluding 1979. For example, if we wish to know how many Black examinees taking the GRE in 1978 had bachelor's degrees in mathematics, we would look at the column marginal of the first matrix, that is, column 1, row 102. We find the number 208 in that cell. How many of those 208 test takers planned to study mathematics at the graduate level? Column 1 row 1 shows 60. Only 60 of 208 Black math majors taking the GRE planned to continue in mathematics. What did the rest plan to study? Looking down the first column we see 11 people switching to applied mathematics, 7 to statistics, 2 to physics, 38 to computer science, and so forth, with a few planning to enter very different fields, such as occupational therapy and public administration. We could continue paging through the file to the last matrix to compare the same statistics for each year through 1987.

In constructing the detailed matrices, we did not include all records from the GRE files. We excluded examinees who omitted either of the questions on major field, though we retained those who marked "other." An omission of either question would make it impossible to study the flow of those examinees into or out of a field. We also included only U.S. citizens for reasons that should become evident.

In recent years, increasing numbers of foreign students have been taking the GRE and attending U.S. graduate schools. According to the GRE Data Summary Reports, 91.1% of the GRE population in 1978 were U.S. citizens (Wild, 1979). By 1987, this figure had dropped to 84.2% (Educational Testing Service, 1988). Foreign examinees, not surprisingly, tend to score lower than U.S. citizens on the verbal and analytical tests. In 1987, the verbal score average for all examinees was 487; for U.S. citizens, the average was 505. There was a similar difference in analytical score averages, with the total population averaging 528 and U.S. citizens averaging 541. Quantitative scores tend to be higher for foreign examinees because a large proportion of foreign students are in the sciences and engineering. The average quantitative score in 1987 for all test takers was 539; for U.S. citizens the average was 531.

Because foreign test takers score so differently from U.S. citizens, researchers studying GRE data are finding it increasingly necessary either to restrict analyses to U.S. citizens or to analyze U.S. citizens separately from foreign examinees. In the design of the talent flow data base matrices, therefore, we included only U.S. citizens for two reasons.

First, talent flow questions generally pertain to U.S. education, the U.S. economy, and the interests and values of U.S. students. Foreign examinees may exhibit very different patterns of talent flow depending on their nation's priorities, cultural differences, and other factors. Although statistics about foreign examinees may be interesting, they would not be central to most studies of talent flow.

The second reason for excluding foreign examinees was based on data processing, storage, and maintenance demands. Because of the matrix structure of the data base, inclusion of foreign examinees would triple the number of files that would have to be created and managed.[1] Already, with our focus just on U.S. citizens, a considerable number of files were required, and more may be added in the next few years. If, at some future time, we have reason to create a matrices for foreign examinees, we can easily create them from the individual examinee data base.

At the present time, the detailed matrices are in two locations. One copy is on tape accessible through the ETS mainframe, and one is hard copy with labels for easy reading. The matrices on tape omit the marginal rows and columns and are therefore 101 rows by 101 columns.

Although the hard copy is easy to read, it constitutes many volumes and cannot be easily duplicated for distribution. Appendix C shows an example of the hard copy: the percentage of 1987 female examinees planning to earn a doctorate. Appendix D lists the files currently existing on tape.

Matrices of broad areas of study. The "small" matrices are the easiest to use and provide summary statistics for broad fields of study. For example, we might be interested in combining areas of biology instead of analyzing zoology, genetics, and other specialties separately, as we must do if we wish to obtain summaries from the detailed matrices. Thus we combined 11 fields into a single category labeled biological sciences.

There are many ways we might have combined major fields, depending on the purpose of the analysis. Some investigators may, for example, include history within the humanities. Others may include it in the social sciences. Still others may wish to keep it separate so they can compare it with other areas of the humanities or social sciences. Students of the humanities may wish to exclude the arts, particularly the fine arts and design, from the broad area of arts and humanities. Similarly, some scientists would include metallurgy in the physical sciences but others would place it under engineering. The interdisciplinary fields are especially hard to classify. Hospital administration is both administrative (suitable to include with business and public administration) and appropriate for inclusion with health services.

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[1] The background questionnaire recognizes three categories: U.S. citizen, resident alien, and neither. An analysis of foreign examinees would probably distinguish between resident aliens, most of whom would have been educated in the United States, and the third category, most of whom would have received their education abroad. Future studies of talent flow among foreign examinees can create the necessary matrices for these two groups from the individual examinee data base.

For the purposes of studying talent flow, we are concerned with change in field of study--how many people change, and whether the changes are to slightly different fields or greatly different fields. Just what defines a "different" field of study, however, is subject to interpretation.

Consider some of the common classifications of disciplines. "Physical sciences," for example, often includes astronomy, physics, and chemistry. A student who earns a B.S. in chemistry and then enters graduate school in astronomy is an extreme rarity, however, because the chemistry curriculum does not prepare someone for graduate study in astronomy. There is very little course overlap, and the technical contents of the two fields are quite different. From the point of view of curriculum content, therefore, a change from chemistry to astronomy would be a significant change.

Viewed from another point, switching from chemistry to astronomy is only a trivial change because the person does not leave the physical sciences. This latter view might be held by someone concerned with talent flow into and out of the sciences. There is no loss of talent from the sciences if someone makes a lateral shift to a different physical science.

Suppose a person changed from mathematics to education. In terms of curriculum content, this is a considerable change. The student's graduate education courses will be quite different from his or her advanced undergraduate math courses. But the change from math to education is a frequent change because many math students wish to teach in high school. From that perspective, their undergraduate curriculum prepares them appropriately for their graduate work. They are not really changing to a different field--they are not abandoning mathematics--but are merely progressing along a natural course to become math teachers.

What if a student changes in the reverse direction, from education to mathematics? Such a change is far less frequent than the change from math to education. Furthermore, higher level mathematics (advanced calculus, for example) is not part of the undergraduate education curriculum. So if education majors intend to become mathematicians, they must take even more advanced courses than their fellow students who are planning to teach math. From any perspective it seems likely that the transition from education to mathematics would be regarded as a large change. Furthermore, it is greater than the change in the reverse direction. In some instances, therefore, a change from a to b is not the same magnitude of change as a change from b to a.

For the purposes of the talent flow data base, we grouped major fields into the following 10 categories:

Arts/Humanities
Physical Sciences/Mathematics
Engineering
Biological Sciences
Applied Biology/Environmental Sciences
Social Sciences
Applied Social Sciences
Health Sciences/Services
Education
Business/Public Administration

Appendix E lists the specific fields of study that were grouped into each of these broad areas of study. Although the classification scheme used here will not be satisfactory to everyone, it provides a useful "first shot" at studying talent flow. When we receive an inquiry about science students planning to earn a master's degree in education, or about the brain drain from the physical sciences into other fields, or about how well the humanities are doing, these tables can provide a convenient source for a simplified answer. When the question involves a more detailed look at disciplines, in-depth analyses using the detailed matrices will be appropriate.

The small matrices are also simplified in that they exclude examinees who marked "other" or "undecided" major field categories because those responses could not be grouped into broad fields. Thus the total number of records used to create the smaller matrices is somewhat smaller than the total number in the detailed matrices.

Like the matrices of detailed fields, the matrices of broad areas of study exist in two forms: hard copy in a binder, and tapes accessible through the ETS mainframe. The matrices are small enough to be copied onto floppy disks or Bernoulli cartridges for analysis on a personal computer. Appendix D lists the file names and formats of all matrices of broad areas of study.

PART II. USE OF THE DATA BASE

ANALYSIS AND PRESENTATION OF DATA

After creating such a large number of talent flow data bases, it became clear that the possibilities for analysis were limited only by time and the capacity to ask questions. Up to 70% of the resources for the project went into development of the data base. The hard-copy output made for fascinating reading in itself. But reporting, in some organized fashion, the "major findings" in the data base could be a lifetime task.

Many kinds of questions could be answered. We could discuss each and every field of study--who enters it, who leaves it, and how they have changed over the last decade. Readers could search one of the many volumes of that encyclopedia to learn about the field of their choice. That goal seemed unrealistic. Furthermore, readers are interested in patterns. They are interested in causal explanations for those patterns, in terms of student background, economic and political conditions at the time of career choice, and relations to other data bases. Analyses at this level of detail and sophistication were unrealistic as "first cracks" at this new data base.

What was a more realistic undertaking for this project was to identify and discuss trends in the marginals of the small matrices (numbers entering and leaving broad fields of study) and some simple analyses of patterns in talent flow into and out of broad fields of study and selected specific fields. Perhaps most important was to find informative ways to present those patterns. Matrices that are 102 rows by 102 columns by 9 years are readable, both visually and by computer, but patterns in data do not simply "emerge."

As a start in data presentation, we produced five sets of tables:

Table 1: Trends for all U.S. citizens taking the GRE

Tables 2.1 to 2.10: Trends for all U.S. citizens intending to major in each broad field of graduate study

Tables 3.1 to 3.10: Trends for all U.S. citizens with an undergraduate degree in each broad field of study

Tables 4.1 to 4.10: Trends for all U.S. citizens with the same undergraduate major and intended graduate major

Tables 5.1 to 5.8: Relationships of selected background variables with the decision to change from each of 10 broad fields of study to another field

We found that in addition to the trend tables, the most effective way to identify patterns was to graph the data in many different ways and then to present the most informative graphs. The shells of those graphs can be retained for the display of other combinations of data at a later time.

Much of this second phase of the project, therefore, involved the trial-and-error design of informative visual presentations, and then the preparation of verbal summaries of those charts.

EXAMPLE 1: TRENDS IN THE SELECTION OF GRADUATE FIELD OF STUDY

GRE Population Trends

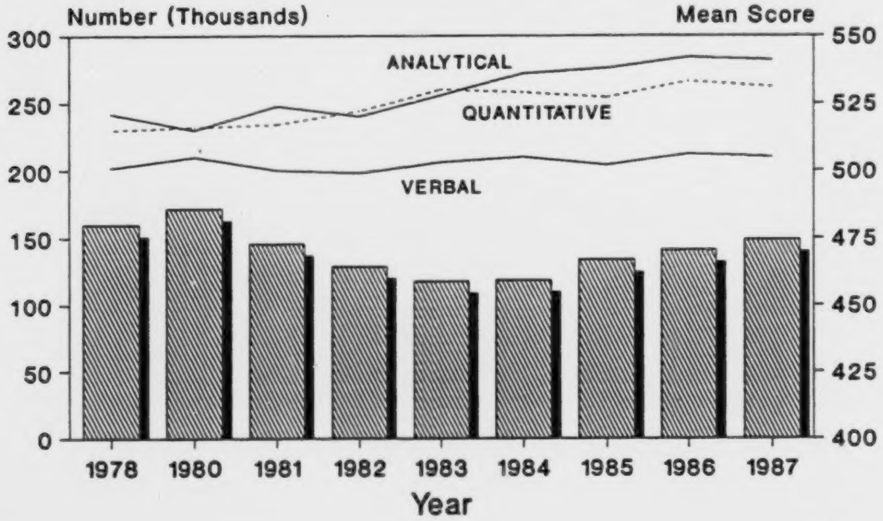
The total number of U.S. citizens taking the GRE and specifying fields of study increased from just under 160,000 in 1978 to over 170,000 in 1980 and then declined sharply to less than 120,000 in 1983. Gradually, it rose again to about 150,000 in 1987. Over that same period of time, the mean GRE verbal score wavered, showing no overall gain or loss between 1980 and 1987. The quantitative score average increased until 1983, dropped a few points in the next two years, and rose again to a peak of 533 in 1986. The analytical score average wavered considerably between 1978 and 1982 and then rose steadily. Between 1980 and 1986, the mean analytical score increased 27 points. It is important to note, with respect to analytical scores, that the General Test was revised several times during this period, and trends in scores are probably not meaningful. Comparisons among groups of examinees within the same year are, of course, appropriate.

Figures are shown below and in Table 1:

	1978	1980	1981	1982	1983	1984	1985	1986	1987
Number	159,907	171,780	145,944	128,740	117,777	118,727	133,636	141,179	148,841
Verbal	501	505	500	499	503	505	502	506	505
Quantitative	515	516	517	522	530	529	527	533	531
Analytical	521	515	524	520	528	536	538	542	541

The following graph shows more vividly that the trends in test scores (line graphs, right scale) did not follow the decline and rise in examinee volume (bar graph, left scale).

Number of Examinees and GRE Scores of U.S. Citizens Who Specified Graduate and Undergraduate Fields of Study



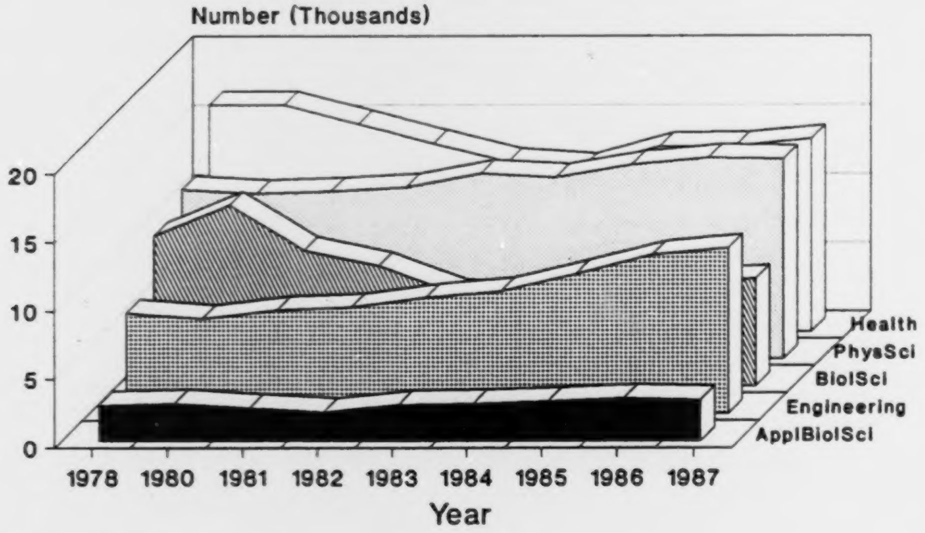
Many educators believe that there is an inverse relationship between volume and ability: when the number of people planning to enter a field changes, there will be a corresponding change in population characteristics, such as test scores. As a field increases in popularity, for example, we might expect it to attract a less select (that is, lower scoring) population. The assumption is that as demand increases--whether for scientists, teachers, college graduates, or some other pool of talent--an increasing volume of people will begin to fill that pool, and those people will be less qualified than the smaller number of people who previously filled the pool.

Adelman (1985) formulated this conventional wisdom hypothesis: "The greater the number of test takers, the lower the scores; the lesser the number of test takers, the higher the scores." He went on to test the hypothesis with trends over nearly two decades in the volumes and scores from nine different tests: the verbal and quantitative sections of the GRE General Tests, the GRE English, History, Biology, Mathematics, and Sociology tests; the Law School Admission Test (LSAT); and the Graduate Management Admission Test (GMAT). Only two of these tests followed conventional wisdom: the GRE quantitative section and the GRE Mathematics Subject Test. These results--two tests out of nine--could hardly be said to support conventional wisdom.

It seems likely that the conventional wisdom hypothesis, rather than being wrong, is just one aspect of a very complex process. We know, for example, that attraction to specific professions changes over time, and the corresponding volume of examinees planning graduate study in those professions changes accordingly. Computer science, for example, showed a considerable gain in popularity in the early 1980s, but geography nearly dropped out of sight during that time. As the population shifts in its interests, we would expect corresponding shifts in aptitudes and experiences.

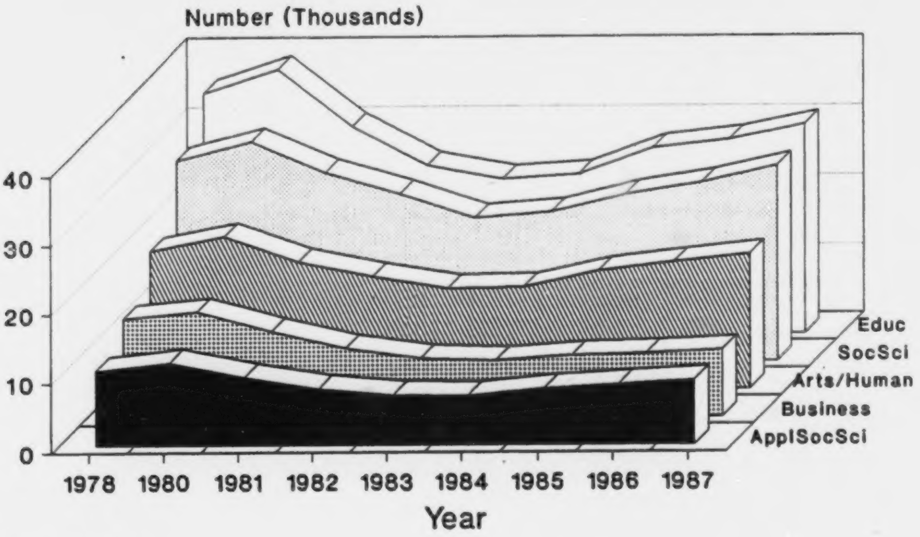
To see whether a decline-and-rise pattern in examinee volume occurred in all fields of study, and to see whether test scores followed a related pattern, we compared the volumes and test scores of examinees planning to enter each of 10 ten broad fields of study. The next two graphs show the overall patterns of examinee volume. Note that the vertical axis is scaled differently on each graph.

Intended Graduate Fields of Study
Physical Sciences/Math, Engineering,
Biological and Health Sciences



U.S. citizens only

Intended Graduate Fields of Study
Social Sciences, Arts/Humanities,
Education, and Business



U.S. citizens only

From these graphs we can make three very striking observations:

1. Most fields, but not all, showed a decline-and-rise trend. For some fields the trend was only slight; for others, it was quite dramatic.

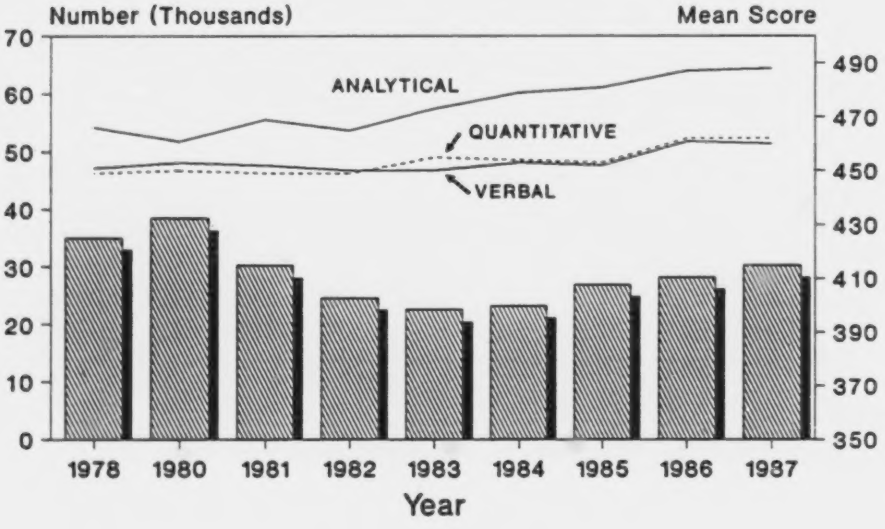
2. Some fields showed very different trends. Engineering, physical sciences, and mathematics showed steady growth.

3. Education and social sciences had the largest volumes, and, consequently, their numbers provided the greatest weights in the population statistics. Even the third largest area, humanities and arts, showed a similar trend. Hence, the fields attracting the greatest numbers of examinees--education, social sciences, and humanities--may be viewed as having determined the decline-and-rise trend in the population.

The observation that trends in examinee volume did vary across fields leads us to examine each of these broad fields of study more closely and, in particular, to see if trends in test scores seem to relate in any way to trends in volume.

Trends within the Ten Broad Fields of Study

Education. The largest field of study, attracting one fifth of the examinee population, is education. The following graph shows the decline-and-rise trend in the volume of examinees planning to study education at the graduate level. GRE score trends are also shown.



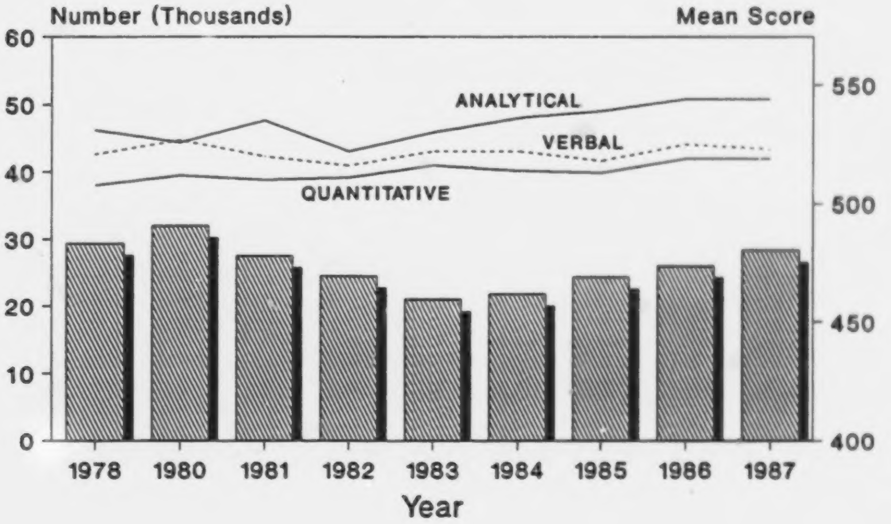
Number of Examinees and GRE Scores of U.S. Citizens Planning to Study Education

In the three years from 1980 to 1983, the number of examinees planning to study education (including teacher education, administration, educational psychology, and guidance/counseling) dropped 41%--from 38,425 to 22,568. The decline of some 16,000 people from education is even more dramatic than the 31% decline in GRE candidate volume during those three years. After 1983, the number entering education slowly increased, but it never reached the peak shown in 1980.

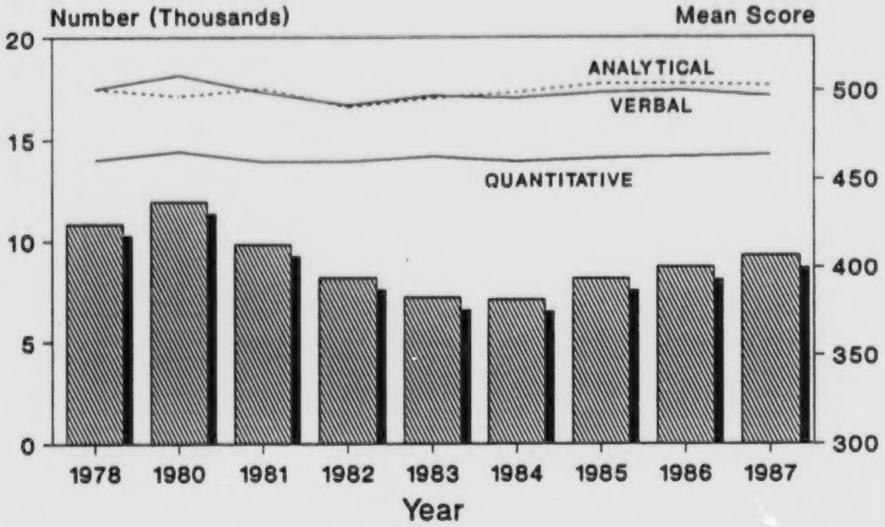
Although volume showed a decline-and-rise pattern, verbal scores showed a small but steady improvement, from a mean of 451 in 1978 to a mean of 460 in 1987. Quantitative scores paralleled verbal scores. Contrary to conventional wisdom, there is no evidence whatever that the dramatic changes in the number planning to study education was associated with any change in academic ability.

Social sciences. The area attracting the second largest number of examinees has been the social sciences, which accounted for 19% of the examinee volume in 1987. The graphs for social sciences and applied social science follow the same trends in volume as the total GRE population. Note that the applied social sciences draw a much smaller volume than the "pure" social sciences (the ordinates of the graphs are different).

Numbers of Examinees and GRE Scores of
U.S. Citizens Planning to Study
Social Sciences



Numbers of Examinees and GRE Scores of
U.S. Citizens Planning to Study
Applied Social Sciences

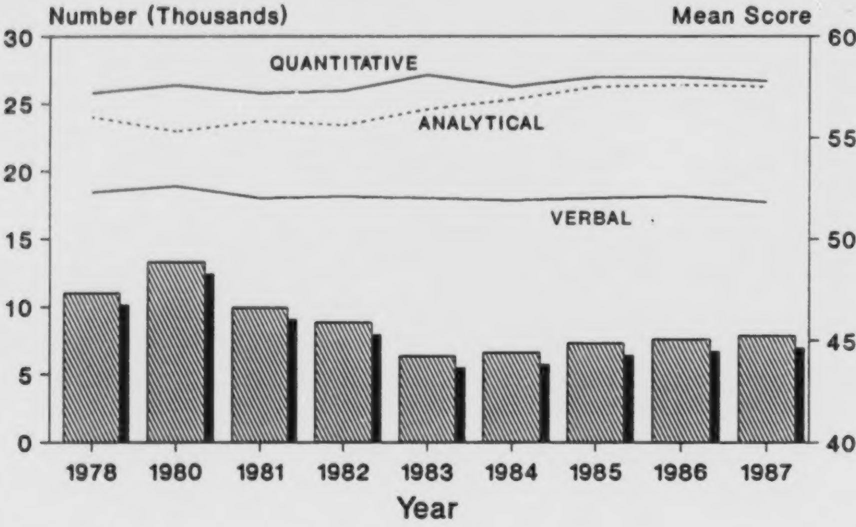


During the three years following 1980, the number of people planning to study social sciences decreased by more than 10,000--a decline of 32%. In the applied social sciences, the decline continued through 1984, so that in the four years--from 1980 to 1984--there was a 40% decrease in examinee volume.

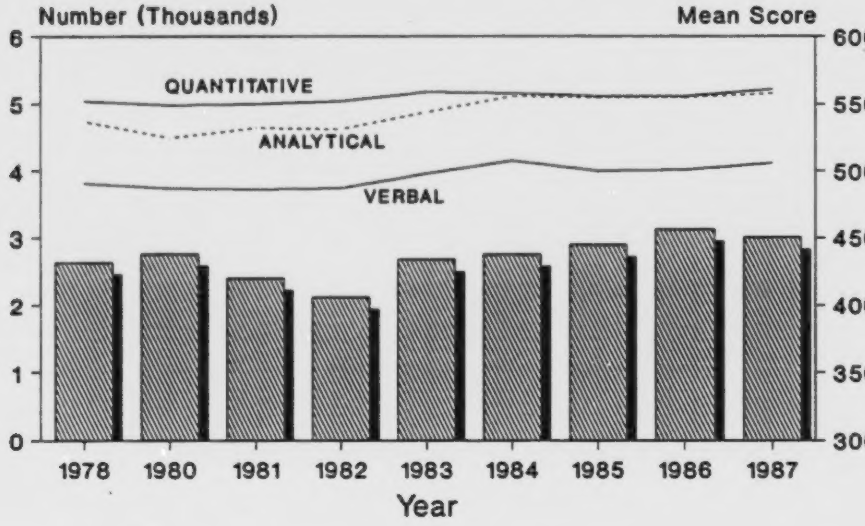
In direct contradiction of the conventional wisdom hypothesis, verbal scores actually peaked in 1980, at the same time volume peaked, especially for examinees entering applied social sciences. Also note that the score means were consistently lower, by about 25 points in verbal, 55 points in quantitative, and 40 points in analytical, for examinees entering the applied social science fields. A hypothesis that students choose their graduate field of study by an evaluation of their own verbal and mathematical skills is explored later in this report.

Biological sciences. The biological sciences, applied biological sciences, and health sciences and services showed quite different trends.

Numbers of Examinees and GRE Scores of U.S. Citizens Planning to Study Biological Sciences



Numbers of Examinees and GRE Scores of U.S. Citizens Planning to Study Applied Biological Sciences

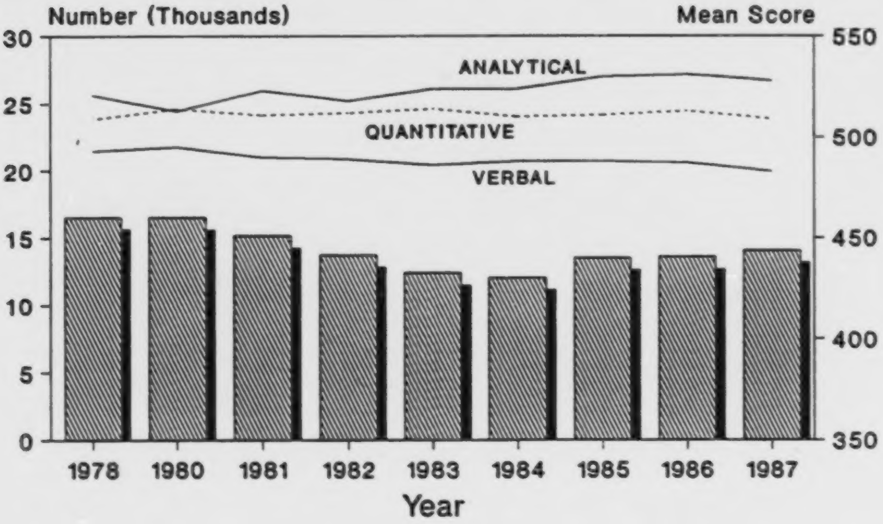


In the "pure" biological sciences, there was a pronounced peak in 1980, just as there was in education, though in relative numbers, only a small percentage of examinees planned to study biological sciences. As in the overall GRE population, biological sciences declined in volume after 1980 with only a gradual rise after 1984.

The applied biological sciences (primarily agriculture and environmental sciences) showed only a minor peak in 1980, and numbers increased after 1982. The following graph, compared with the previous one, suggests a drift in preferences from biological sciences in the earlier years to applied biological sciences in the later years. Note that the scales of all three graphs are different; biological sciences has always attracted from two to four times as many students as the applied biological sciences, and the health sciences have attracted more students the biological sciences.

Health sciences and services, the largest and most stable of the three life science categories, showed only a small decline through 1984, followed by a slight increase in volume.

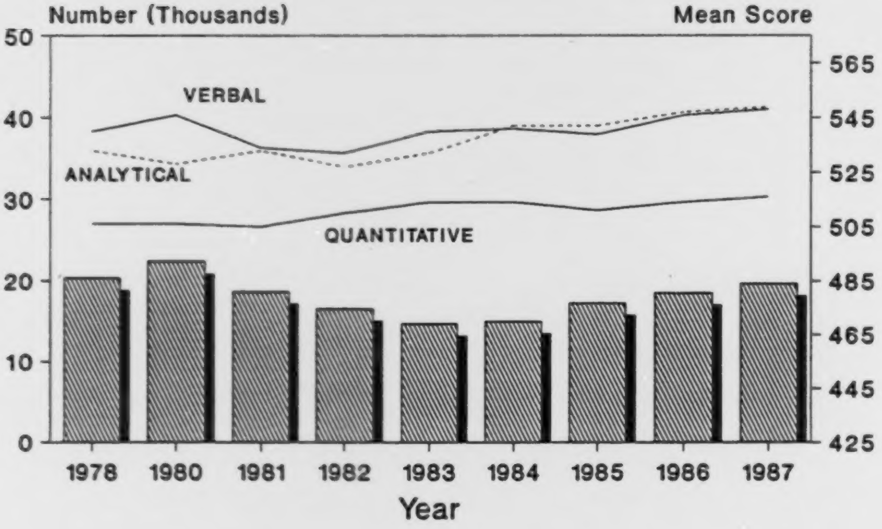
Numbers of Examinees and GRE Scores of
U.S. Citizens Planning to Study
Health Sciences and Services



All three of the life science areas showed some type of decline and rise in volume, but no area quite paralleled the trend in overall examinee volume. As for test scores, the means for both the verbal and quantitative sections rose very slightly for the applied biological sciences and declined very slightly for health sciences and services, but the score changes were so small that they probably do not indicate any real talent flow from one field to the other.

Arts and humanities. Trends in arts and humanities were very similar to population trends.

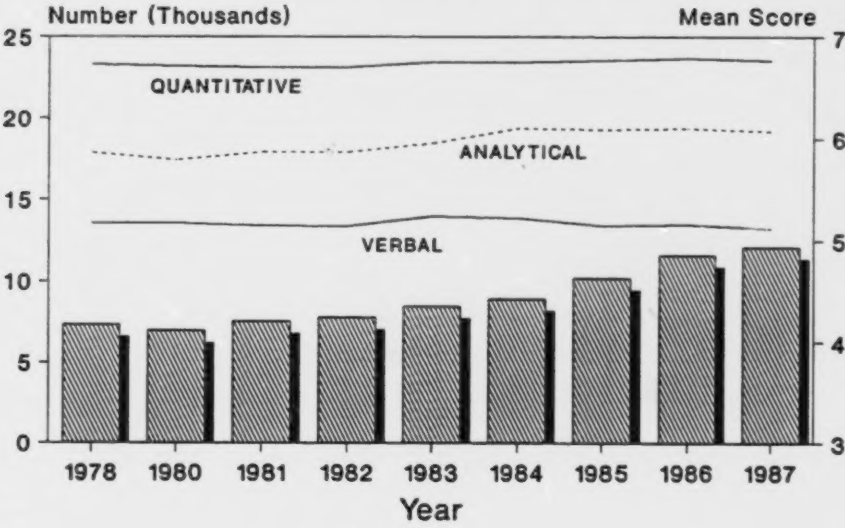
Numbers of Examinees and GRE Scores of U.S. Citizens Planning to Study Arts and Humanities



The number of examinees planning to study arts and humanities followed the same decline and rise seen in education and the social sciences. The test scores, however, showed more pronounced patterns than we saw in other fields of study. Verbal scores peaked in 1980, when the candidate volume was largest. Means then declined in 1981 and 1982. Over the next five years, however, verbal scores rose a full 16 points. Quantitative score averages rose steadily over the entire 10-year period, with a total increase of 10 points. The score increases occurred for both males and females. In addition, the percentage planning to earn a doctorate increased during this time. It appears as if the humanities have been attracting more able students having high aspirations since 1982.

Engineering and physical sciences. Among all of the broad fields of study, engineering showed the largest growth.

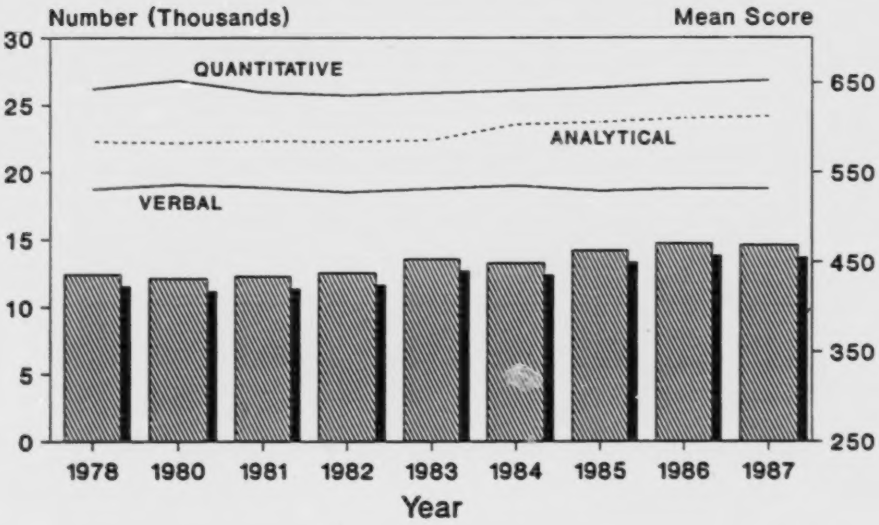
Numbers of Examinees and GRE Scores of U.S. Citizens Planning to Study Engineering



Between 1978 and 1987, the number planning to study engineering at the graduate level increased from just over 7,000 to more than 12,000--an increase from 4.6% to 8.1% of the examinee population. The number of women planning to study engineering doubled over the 10-year period, and the percentage who were Black rose from 2.76 to 3.98. It is perhaps interesting to note that among females planning to study engineering in 1987, 7.6% were Black. There was no consistent change in the test score means over that period.

Math and physical sciences also showed a steady growth of 18% during the 10-year period.

Numbers and GRE Scores of U.S. Citizens Planning to Study Physical Sciences or Mathematics

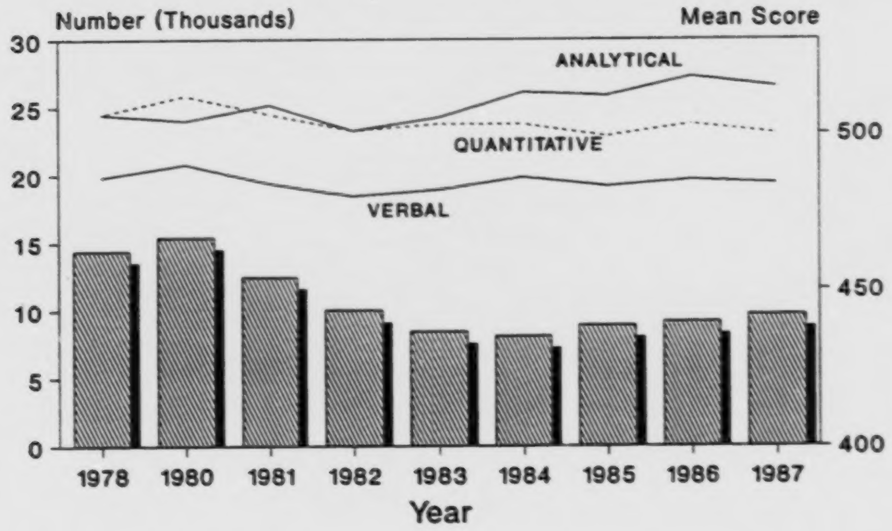


In the five years after 1982, quantitative score averages rose 16 points. This may suggest that within the physical sciences there was some growth after the early eighties both in both the quantity and quality of examinees planning graduate study.

Business, commerce, and law. Students who plan to pursue advanced study in fields such as law, business, commerce, and other forms of administration generally apply to professional schools requiring tests other than the GRE. Some of these students--between 8,000 and 15,000 a year--also take the GRE. We do not know how well the sample who take the GRE represent applicants to law and business schools, so we must be cautious in drawing inferences about this group from our analysis.

Our data show a peak in candidate volume in 1980, just as there was for the GRE population as a whole, followed by a sharp decline through 1984, and then a very slight increase through 1987.

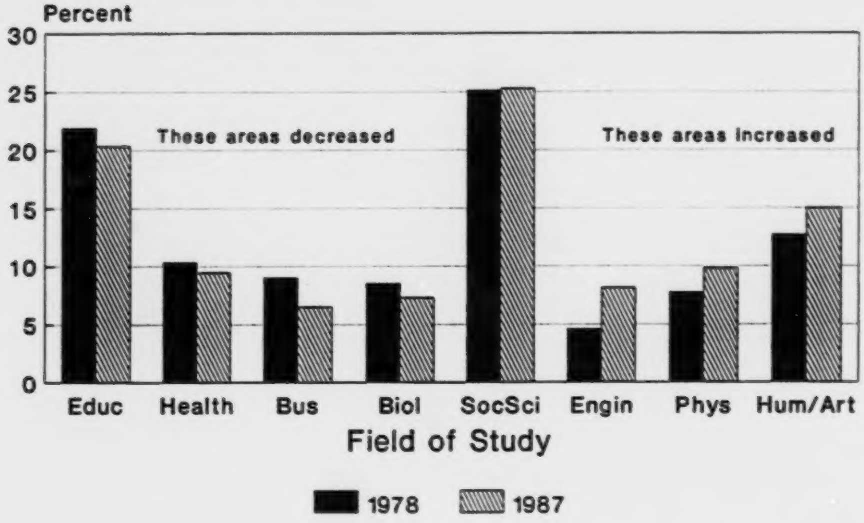
Numbers of Examinees and GRE Scores of U.S. Citizens Planning to Study Business, Commerce, or Public Admin.



The data show that GRE scores, both verbal and quantitative, peaked in 1980, along with the numbers of examinees. Scores dropped slightly in 1982 and changed little thereafter. If this sample adequately represents candidates who apply to law and business schools, at least in their numbers, we see no sign of a brain drain into business and law, as the academic world often fears.

Proportional distribution of the broad fields of study. The data presented so far on volumes of examinees have been based on absolute numbers. Because the total population size varied over the 10-year period, it is difficult to see whether any fields grew or diminished as a proportion of the GRE population. In the following graph, the 10 fields have been reduced to 8, with applied social sciences combined with social sciences, and with applied biological sciences being combined with social sciences. The graph shows the percentages of the GRE population planning graduate study in each area for 1978 (solid bar) and 1987 (shaded bar). The percentage choosing social science fields did not change over the 10-year period, but remained at about 25%. The proportions choosing education, health sciences and services, business, and biological sciences all declined. The proportions choosing engineering, physical sciences and mathematics, and arts and humanities all increased. The selection of engineering, in particular, showed a large proportional increase, from 4.6% to 8.1%.

Change in the Percentages of the GRE Population Planning Graduate Study in Each of Eight Areas: 1978 to 1987



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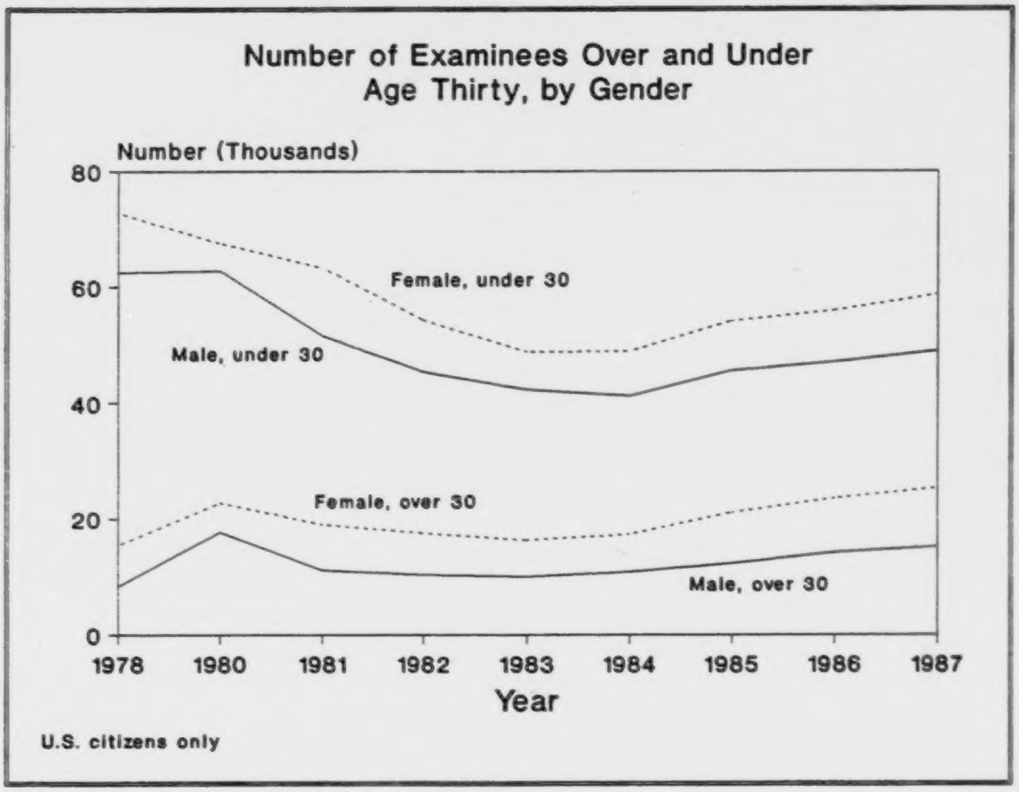
Age, Gender, and Ethnic Composition

Age. Among the matrices for the talent flow data base are mean ages, by gender and by degree goal, and numbers of examinees over age 30, by gender and by degree goal.

In the GRE population as a whole, regardless of gender or intended field of study, the percentage of older examinees increased between 1978 and 1987. Among those who specified graduate fields of study, the percent over age 30 rose from 15.1% in 1978 to 27.7% in 1987. The greatest increase, however, was between 1978 and 1980. After 1980, the proportion of older examinees dropped slightly and then rose very slowly over the remaining seven years.

Female examinees, on the average, were older than males. The mean age for males in 1987 was 26.4, and for females the mean was 27.6. The real difference shows up in the percentage over age 30. Over the 10-year period, the percentage of women over 30 increased from 17.7% to 30.6%, and the percentage of men over 30 rose from 11.8% to 22.3%.

If we look at the number, rather than the percentage, over age 30, we see that the numbers under 30 declined and the numbers over thirty actually remained quite constant, at least after 1980.

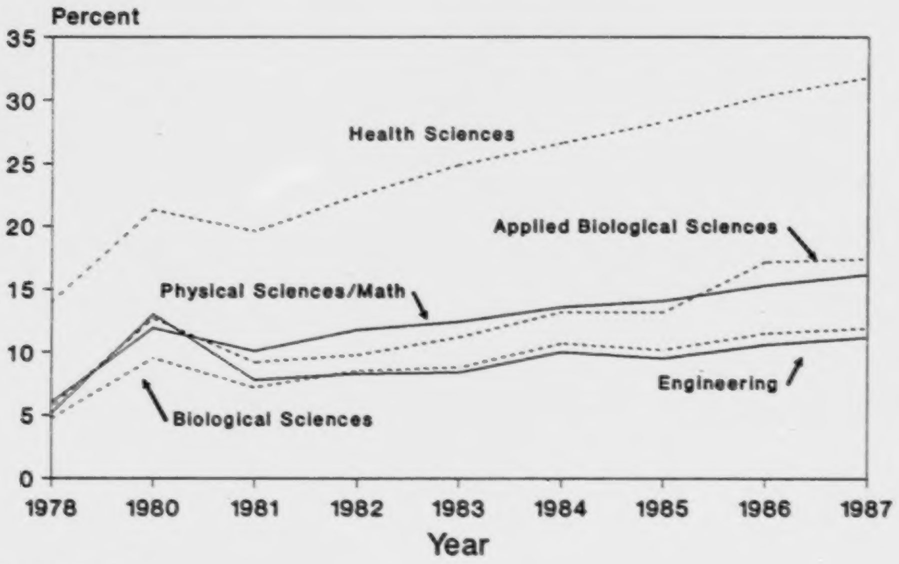


The graph also shows that the peak in examinee volume occurring in 1980 was primarily due to an increase in older students. That increase, especially among older males, reversed by 1981. We might conjecture that the peak in 1980 was associated with the rather severe recession that occurred at that time, and that the recession may have affected older males more than others. We see from the same graph that after 1984, there was an increase in numbers of males and females, younger and older students.

Some fields of study more than others attract older students. In certain fields, such as education, people often work a while before returning for an advanced degree, or they continue their education one or two courses at a time while they work. The following two graphs show trends in the percentages of examinees over age 30, by intended field of study. Note that the scales of the two graphs are different.

Percentage of Examinees Planning to Enter Each Field Who Were Over Thirty:

Engineering, Physical and Life Sciences



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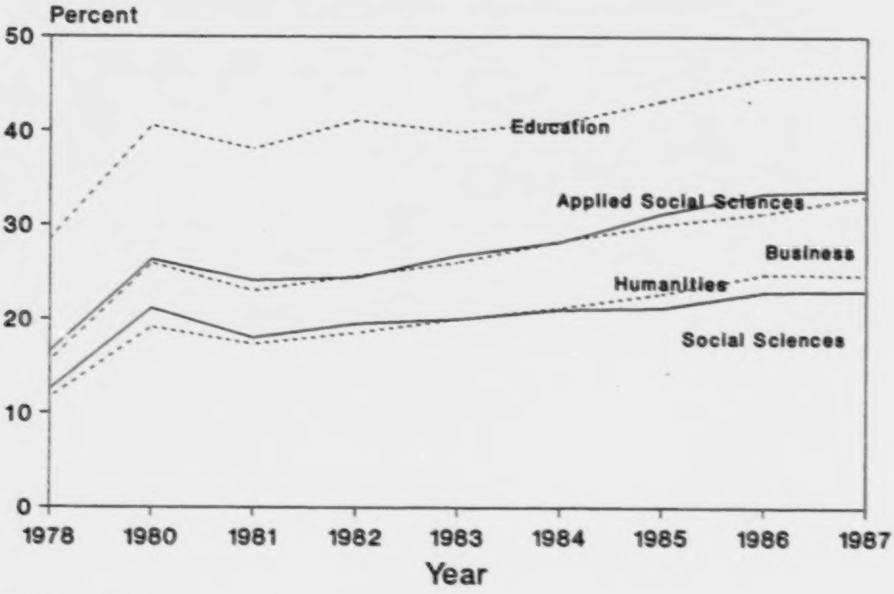
Social Sciences, Arts/Humanities, Education, and Business



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It is clear from both of these graphs that the greatest proportion of older examinees were in service professions--the health sciences and services and education. Within any given area, the most applied fields appeared to attract the older students. More older examinees entered applied social sciences than "pure" social sciences, and, among the life sciences, biological sciences attracted the fewest older examinees, applied biological sciences attracted about 50% more, and the health sciences and services attracted about three times the percentage of older students as did "pure" biological sciences.

The fact that some fields attracted more older students than did other fields has implications for talent flow. We would expect more older students than younger students to be changing careers, since, by necessity, younger students include most of the population who have not yet worked. As increasing numbers of older people return to college or graduate school for a career change, we can expect to see more flow of talent from one profession to another. Talent flow as a result of career change would have quite different effects from talent flow during student years. After people have had work experiences in one area, they have specialized knowledge that gives them a unique perspective on their new field. This unique perspective and knowledge base has the power to change the very nature of the second career.

In 1987, 100 GRE takers over age 30 had undergraduate majors in engineering and planned to do graduate work in the social sciences or applied social sciences. These examinees, if they pursued their goals, would bring to the social sciences a very different body of experiences than would the bulk of other social science majors. Because they were over 30, they were likely to have had careers--probably as engineers--and for whatever reasons, they had chosen a complete change of field.

Consider another example--the graduate field of education. Older people entering education may be leaving industry in order to teach, they may be homemakers planning to enter the work force, or they may be leaving teaching for administration. In any case, their movement has a different effect on their careers and on the profession than if they had never been employed or had never homemakers.

A 40-year-old scientist leaving a chemistry laboratory to teach high school has considerably more to offer students to prepare them for an occupation in the sciences and in industry than does a 23-year-old graduate who has studied education but has had no work experience in chemistry. On the other hand, the laboratory is losing a productive (or unproductive) worker. A person leaving teaching for administration brings to that position much first-hand experience in the problems of teachers, while his or her students may be losing an effective (or ineffective) teacher. Someone who has been a full-time homemaker and who now plans to teach has had the unique experiences of rearing children--experiences quite different from those of the student who has learned about children exclusively from education and psychology classes. Although she (or he) may bring valuable experience from the home, the home may also suffer by losing much of the valued parent's time. In all cases, there will be a pronounced shift in the balance of talents among occupations when people transfer their efforts from one line of endeavor to another.

Not all older students, of course, are changing careers. Some are advancing their careers. Some started college when they were older and are continuing straight through graduate school. All of these examinees are worthy of study, and with additional information from the data base, such as years since they earned a bachelor's degree, we can research the characteristics of people who are structuring their education and their careers in many different ways.

Gender. Among all U.S. citizens taking the GRE General Test and specifying fields of study, the percentage who were female increased very little over the 10-year period studied. In 1978 the figure was 55.1%. It rose only to 56.5% by 1987. This is surprising because the number of women awarded doctorates increased substantially over that decade. Between 1978 and 1987, the percentage of U.S. citizens awarded doctorates who were female rose from 29.0% to 40.9% (National Research Council, annually from 1978 to 1987).

One explanation could be that GRE takers are not representative of doctoral candidates. From our talent flow data base on examinees planning to earn a doctorate, we find the percentage of females increasing from 46.4% to 50.3%. Although this is a slightly larger increase than we found among all GRE takers, it by no means resembles the statistics for doctoral recipients.

From the GRE data base alone, of course, we cannot explain this discrepancy. A curious speculation would be that more women who intend to earn a doctorate are now successfully completing their work.

An alternative explanation could be that the lag time between taking the GRE and acquiring the doctorate is too long to allow the two data bases to be compared with much precision. If the women who earned a doctorate in 1987 took the GRE in 1980, the percentage earning the doctorate and the percentage taking the GRE and intending to earn a doctorate differ by only 2 percentage points! This finding not only supports the alternative explanation for the apparent discrepancy between the two data bases, but it suggests remarkable predictive validity for the GRE background question on degree aspirations.

What these observations also suggest, however, is that in the near future, based on GRE predictions, the percentage of women earning doctorates will not increase noticeably. This prediction is believable because the percentage of doctorates awarded to women did level off after 1986. Prior to 1986, the numbers increased by 1 or more percentage points each year. From 1986 to 1988, the percentage of doctorates awarded to women increased only from 40.9% to 41.0%--just one-tenth of 1 percentage point in a period of two years.

For whatever the small increases in female test takers means, it is worthwhile to examine the numbers of women planning to undertake graduate work in each area. Regardless of that figure's predictive validity, it indicates which fields are being selected by more women and may indicate how well the various professions are encouraging female participation.

In the GRE files, fields such as the applied social sciences and education, which have always been predominantly female, did not show noticeable increases in female examinees. In both of these fields, women constituted about 75% of the population, and this figure has remained fairly constant over 10 years studied. In health sciences and services, however, the numbers grew slightly from an already high 76% in 1978 to 80% in 1987. This field, however, includes medicine as well as nursing and numerous other allied health professions. Women have been traditionally underrepresented in some of these fields.

To better understand whether there was a redistribution of female test takers among the health sciences, we have to examine trends in each of the constituent fields. A brief look at the detailed matrices shows that between 1978 and 1987, the "traditionally female" graduate fields of home economics and nursing showed declines in numbers, while the "traditionally male" fields of medicine and veterinary medicine showed growth in female representation. The figures were as follows:

Graduate Field	Number of Female Test Takers 1978	1987
Home economics	681	455
Nursing	5818	5673
Medicine	149	539
Veterinary medicine	560	1073

This redistribution in the selection of specific health sciences and services by women suggests a line for future research using the talent flow data base to explore the changing academic and background characteristics of women entering and leaving these fields.

In the applied biological sciences there was an increase in female representation from 30% to 37%. In the "pure" biological sciences more women were represented, though their numbers increased only very slightly. Over the 10-year period, the percentage of females rose from 46% to 50%. The arts and humanities also remained about equally represented by males and females.

The physical sciences, mathematics, and engineering--fields that have always attracted more males--showed very little increase in female representation. Over the 10-year period, the number of women planning to study physical sciences or math rose only from 27% to 29%; in engineering, the numbers rose from 14% to 18%.

Ethnic composition. The percentage of GRE examinees who specified fields of study and were Black decreased from 6.4% to 5.3%. Similar numbers hold for those planning to earn doctorates. The percentage of doctorates conferred to Black students also declined by about 20%.

The fields that attract Black examinees changed very slowly. Physical sciences, math, and engineering showed a gradual increase over the 10-year period, but the total increase was only a percentage point. The percentage of Blacks planning to study social sciences declined slightly, from 7.1% to 5.1%. The applied social sciences and education also declined in popularity by about the same amount.

The percentage of Asian American examinees, while still quite small, increased in essentially all fields. In 1987, 9.1% of the examinees planning to study engineering were Asian American. Engineering was the area most frequently chosen by Asian Americans.

Like Asian American examinees, the number of Hispanic American examinees increased in virtually all fields. Their numbers were fairly evenly spread over all broad fields of study.

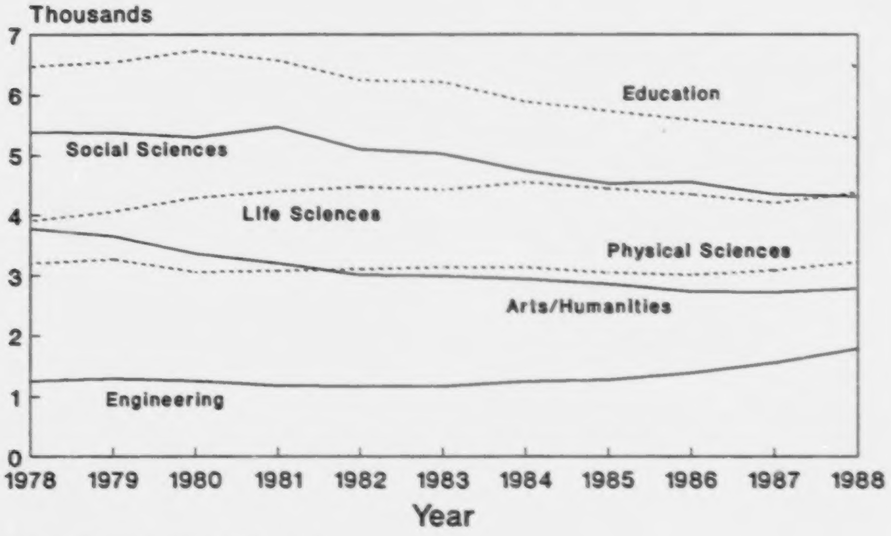
Trends Among Doctoral Candidates

It is fairly well known that students aiming for a master's degree have lower test scores and grades, on the average, than students aiming for a doctorate. Self-selection plays a primary role before the student ever takes the GRE.

The analyses discussed so far apply to all U.S. citizens who specified both graduate and undergraduate fields of study. On the average, just under 40% planned to earn a doctorate. For the talent flow data base, we computed a parallel set of all matrices just for examinees seeking a doctorate.

Doctorates conferred, by field of study. The GRE data base cannot be expected to reflect the actual flow of students into graduate school and, subsequently, to the earning of a doctorate. To see how much comparability there may be between the two populations, we compared the numbers of doctorates actually conferred to U.S. citizens in six broad fields with the numbers of GRE examinees planning to enter those fields. It is difficult to correct for the lag time between taking the GRE and receiving a doctorate because people require varying amounts of time to complete their graduate work, and because those who took the GRE most recently had not yet completed their studies.

Trends in Doctoral Recipients
within Six Fields of Study
(U.S. citizens only)



Source: National Research Council

We see, however, that both bases do support the conclusion that education, social sciences, and humanities lost popularity, at least through the mid-eighties and possibly later.

Comparisons in life sciences are rather difficult without recombining specific fields from the GRE data base. The number of doctorates conferred increased between 1978 and 1988, whereas the number of GRE candidates planning to earn doctorates declined and then rose gradually. These patterns do not appear to be consistent, especially when compared with those of education, humanities, and social sciences. The GRE trends in those three areas were very similar to the trend in each area of the life sciences, but the trend in the number of doctorates awarded in those three areas was the opposite of the trend in doctorates awarded in life sciences.

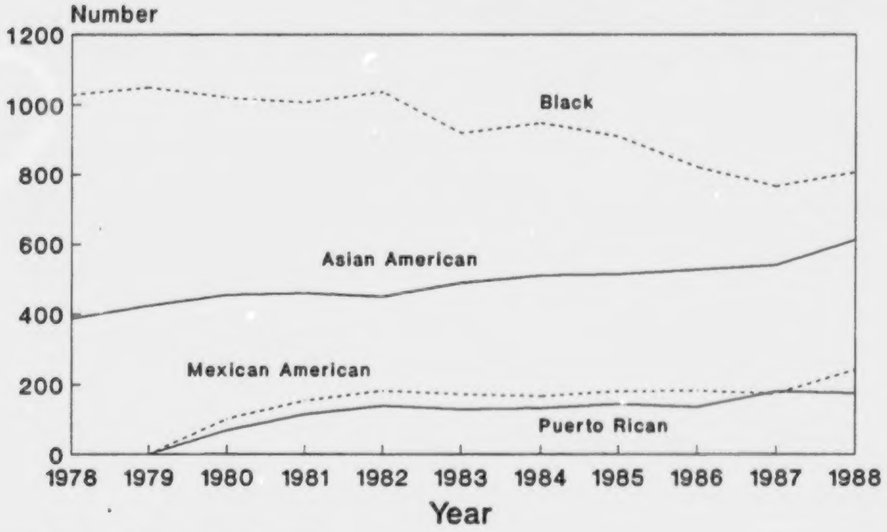
Physical sciences and engineering both showed upward trends in doctorates awarded and in the GRE files of examinees planning to earn doctorates in these fields.

Although the trends in some fields selected by GRE examinees followed the trends in doctorates awarded, this was not true of all fields. There were also some surprising discrepancies between the actual numbers of doctorates awarded in a field and the number of GRE examinees planning to earn a doctorate in that field.

In the social sciences and applied social sciences, from 14,000 to 20,000 examinees each year indicated the intention to earn a doctorate. In actuality, only about 5,000 students a year earned doctorates in social sciences. At the other extreme were engineering and education, in which the numbers earning a doctorate were nearly as high as the numbers taking the GRE and aspiring to do so. It is difficult to know how to explain these differences across fields in the capacity to predict doctorates earned from doctorates intended. Keeping the differences in mind is important when making predictions from GRE information.

Doctorates conferred, by ethnic group and gender. In addition to comparing GRE data with doctorates received by field of study, we also compared the two data bases by ethnic group and gender.

Trends in Doctoral Recipients among Four Ethnic Groups
(U.S. citizens only)



Source: National Research Council

Consistent with the GRE data are the trends in doctorates awarded to each minority group. Of the four defined minority groupings, the Black group was the only one declining both in numbers earning doctorates and numbers planning to earn a doctorate. All other groups were increasing.

The percentage of all female doctoral recipients was discussed earlier when we noted that the percentage increased until 1986 and then leveled off. If the women earning doctorates took the GRE around 1981, the two data bases are consistent because the percentage of women planning to earn doctorates reached a peak around 1981 and remained roughly constant thereafter. Women taking the GRE in 1981 would have been earning their doctorates around 1986, when the numbers leveled off.

***Trends among GRE examinees planning to earn doctorates*.** Rather than discussing all fields again for those pursuing a doctorate, we will note some highlights.

The number of examinees planning to earn a doctorate showed the same decline-and-rise pattern that we observed with the total data base, with a peak occurring in 1980. Each of the broad fields of study followed patterns very similar to those observed above.

Overall, the test scores of examinees planning to earn a doctorate increased during the 10-year period. Verbal means rose from 533 to 539, and quantitative means rose substantially, from 544 to 559. Several fields reflected these score increases more than did other fields.

Among examinees in applied biological sciences, verbal means rose from 517 to 534, and quantitative means rose from 574 to 582. It was entirely among males in these fields that the scores increased.

In the area of education we also observe an improvement in test scores. Verbal means increased from 488 to 496, and quantitative scores increased from 469 to 484. The greatest improvement in verbal scores was among males; the increase in quantitative scores occurred for both genders.

EXAMPLE 2: CHARACTERISTICS OF EXAMINEES WHO CHANGE FIELDS

External forces--economic, social, political, and scientific--may prompt people to select and change fields at any time during their student years. During the sixties, there was an intense awareness of social issues such as racial equality, a fear of nuclear war that aroused suspicion of technology, and a virtual shutdown of many scientific research facilities that contributed directly or indirectly to the Vietnam War effort by accepting Defense Department funding. Major corporations, such as Boeing and RCA, each laid off hundreds of engineers, Princeton University shut down its accelerator, and aerospace engineers were retooling for new careers. For several years there was a shortage of jobs for scientists and engineers and abundant jobs in education and in social welfare agencies. Federal fellowship support for graduate study in science and engineering declined during the seventies, as did the number of scientific and technical articles published. Correspondingly, science and engineering degrees awarded declined abruptly during the early seventies and stabilized later in the decade. (See National Science Board, 1983.)

Eventually, the pendulum began to swing the other way. Fewer jobs for humanities majors and teachers and low salaries in the service professions drove some students to consider the professions of business, medicine, law, engineering, biological sciences, and computer science, where the employment outlook had improved. (See Grandy, 1984, 1985.)

By the mid-eighties, student interest in law and medicine were in a decline, and business was soaring. Students had learned that computer science was difficult, which may account for its decline in popularity. Meanwhile, the humanities continued to decline, as did the sciences. (See Grandy, 1989; National Research Council, 1986).

CIRP surveys of college freshmen show that changes in occupational preferences appear to be associated with corresponding changes in student values. Liberal political attitudes were associated with the social concerns of the sixties; since 1970, a "middle-of-the-road" identification has steadily risen (Astin & Green, 1987). The wish to be very well off financially was not such an important goal in the sixties, when fewer than 40% of American freshmen identified that goal as essential or very important. By the later eighties, almost 80% of college freshmen had decided it was essential or very important (Astin, 1990). In an inverse relationship, the value of developing a meaningful philosophy of life declined from being essential or very important to more than 80% of the freshman class of 1967 to less than 40% of the 1987 freshmen. Finally, between 1986 and 1990, there was another swing of the pendulum. It became very important or essential to influence social values and influence the political structure. Along with this desire to become personally involved in changing American society came a renewed interest in developing a meaningful philosophy of life and promoting racial understanding. Furthermore, the importance of financial security began to decline, and the desire to clean up the environment began to rise.

Although we cannot be sure that students starting graduate school reflect the same values as incoming freshmen, it is likely that their values are similar because they do reflect the values of the larger culture around them.

Aside from external forces that influence student values and beliefs about occupations and the job market, there are characteristics of the individual that lead students to recognize the fields that might be most appropriate for them. In the case of students who are "late bloomers" or who are inspired by particular undergraduate courses or professors, this recognition may not occur until their senior year in college, at which point, because it is too late to declare a change in undergraduate major, they decide to enter graduate school in a different field.

In the large number of students who spend some time in the work force between undergraduate and graduate school, this self-recognition process may be even more marked because work experiences may lead college graduates to reevaluate their interests. Perhaps one compelling reason for choosing a graduate major is a feeling that one "belongs" in that field.

This feeling may be based on a belief that others in that field are of similar ability level or that they share the same background characteristics and interests as the applicant. While the GRE data do not permit us to gauge examinee interests, they do allow us to conjecture about examinees who may be changing fields because of convictions about their ability or about their background characteristics vis-a-vis those of others in their chosen field. The concurrent survey of GRE examinees mentioned earlier will enable us to test some of these hypotheses and to elaborate upon the statistical findings we are presenting here.

Changers versus Nonchangers

The matrix structure of the talent flow data base lends itself to many approaches for studying changes in major field. In the detailed matrices, those cells lying on the diagonal contain data on people who planned to continue their graduate program in exactly the same field as their undergraduate major. Those off the diagonal intended to change fields, though that change might have been to a "nearby" field, such as the change from biology to microbiology, or it may have been a radical change, such as from mathematics to archaeology.

The smaller matrices were designed to cluster fields so degrees of change would be less of a problem to define and calibrate. Anyone remaining in the same general area is regarded as not changing. Anyone moving from a pure to an applied area or to education is seen as having made somewhat more of a change, although they may have been preparing for the applied field or for teaching when they chose the undergraduate major. If they changed between other broad areas of study, we defined their move as a definite change. A move, for example, from some area of humanities to some social science is regarded as a definite change.

To simplify preliminary analyses, we regarded a person who made any change, even a small one, as a "changer." Anyone who remained in the same broad field of study (on the diagonal of the matrix) was analyzed as a "nonchanger." For most purposes of studying talent flow, these definitions seem adequate. To the individual student, of course, change may be perceived quite differently. Furthermore, by our definition, the changer category is overinclusive; that is, it includes people flowing from a preparatory field to a graduate specialty, such as biology majors intending to go to medical school. Thus, the number of people included as changers in our analysis is an overestimate of the number of people who actually decided to change into a different field.

The analyses in this section will compare the characteristics of the "on-diagonal, nonchangers" to the characteristics of the "off-diagonal, changers." We will examine each of the 10 broad categories of undergraduate majors in turn. Trend tables for males and females combined and for males separately and females separately are in Tables 2.1 to 2.10, (for each graduate major), in Tables 3.1 to 3.10 (for each undergraduate major), and in Tables 4.1 to 4.10 (for those whose undergraduate and graduate majors were the same).

Undergraduate arts and humanities majors (Tables 3.1 and 4.1). About a third of undergraduate arts and humanities majors choose a different field for their graduate work. This percentage held fairly constant from 1978 to 1987. The percentage of undergraduate arts and humanities majors who were female also held fairly constant, at about 58%. It may be surprising, however, that when male undergraduate humanities majors are compared to female majors, it is the females who showed a greater tendency to change fields. Across the studied years, about 73% of the males who majored in humanities intended to continue in this field, as opposed to only 56% to 60% of the females. GRE scores did not seem to be a factor: nonchanger scores were about the same as those for humanities majors as a group.

The percentage of undergraduate arts and humanities majors who were over 30 at the time they took the GRE was high and steadily increased across the study period (17% in 1978 to 31% in 1987). Among those who intended to stay in the humanities, the percentage was somewhat lower (10% in 1978, 22% in 1987). Therefore some of the older people tended to be changers. Many of these people gravitated toward majors in education.

The percentage of humanities majors pursuing a doctorate increased slightly over the study period (from 36% in 1978 to 42% in 1987). It is not surprising that those humanities majors who remained in the humanities were even more likely to be seeking doctorates (40% were in 1978 and 47% in 1987).

Undergraduate physical science and mathematics majors (Tables 3.2 and 4.2). Undergraduate physical science and math majors tended to choose the same field for graduate school. Over the 10-year period studied, about three-quarters of them were nonchangers. These examinees scored high on all three parts of the GRE, with quantitative scores around 650, verbal scores around 530 and analytical scores around 600.

Physical science majors tend to be young when taking the GRE, although there is a trend toward a slightly higher percentage of older physical science major examinees. In 1978, less than 8% were over 30 but by 1987 the percentage over 30 had doubled. The percentage over 30 among those who remained in the physical science field from undergraduate to graduate school was slightly lower (4% in 1978 and 12% in 1987). Therefore, some of the physical science majors who changed fields must also have been older people. The few undergraduates who left physical sciences or mathematics tended to go into engineering or education.

The transition from physical science to education might be worthy of exploration in some detail because these people are likely to become the science and mathematics teachers who are most knowledgeable in their discipline. The talent-flow data base shows that in 1987, 886 undergraduate physical science majors intended a graduate major in education. The mean GRE scores for these changers (verbal = 509, quantitative = 639, analytical = 581) were slightly lower than those for undergraduate physical science majors as a group (verbal = 529, quantitative = 649, analytical = 609), but they were high enough for admission to many graduate science programs and certainly higher than those of the average graduate education major (verbal = 460, quantitative = 462, analytical = 488). It cannot be true, therefore, that all of these examinees were moving from physical science to education because they were of lower ability than the majority of physical science majors (at least in terms of GRE scores). An examination of GPA in major may shed more light on their rationale.

In 1987, the 886 undergraduate physical science majors had a mean GPA in major of only 2.98, whereas the 11,894 nonchangers had a mean GPA in major of 3.24. The physical science to education changers also tended to be much older (mean age of 31 in the 1987 cohort) than the nonchangers (whose mean age was only 24). The physical science to education changers had other characteristics (58% were female, 10% were Black, 20% had fathers with graduate or professional degrees) that differentiated them from the physical science nonchangers (29% female, 4% Black, 30% with fathers with graduate or professional degrees). Therefore, the fact that these changers found their niche in teaching as opposed to physical science may have more to do with their sex, age, ethnicity and family background than it does with their ability as measured by the GRE.

This analysis is an informal one. Future studies using the talent-flow data base could employ more rigorous statistics to estimate the contribution of each of these variables to the prediction of whether or not a physical science major (or other major) will change fields.

Undergraduate engineering majors (Tables 3.3 and 4.3). Engineering students tended to be among the youngest (mean age 24) at the time they took the GRE. Undergraduate engineering majors also tended to be among the most faithful to their field when choosing a graduate major: about 80% of them remained in engineering. This was true of both males and females. Among the relatively few who did change fields, the majority opted for physical science or math. Similarly, a physical science/math undergraduate degree could also be a ticket into graduate engineering; very few graduate engineering majors came from other fields.

The percentage of females in both undergraduate and graduate engineering programs remained small (about 17% in 1987, increasing from about 11% in 1978). Female engineering majors still scored somewhat lower, on the average, than their male counterparts on the General Test quantitative section, but their average analytical and verbal scores were consistently higher than the average scores of males.

Engineering, both graduate and undergraduate, had the highest representation of Asian Americans of any field, and this representation increased slightly throughout the 1980s--from about 6% to about 9%. (These data do not take into account the large number of non-U.S. citizens in engineering). The number of Black test takers planning to study engineering at the graduate level, while small (482 in 1987), more than doubled between 1978 and 1987.

Undergraduate biological science majors (Tables 3.4 and 4.4). Biological sciences is a field that is much less inbred than engineering; in fact, about half of graduate biological sciences majors come from other broad fields. "Pure" biological sciences as a graduate major was much less popular than it is as an undergraduate area. In 1987, there were 12,635 undergraduate majors in a biological sciences field but only 7,852 people intending to major in one of those fields in graduate school. Biology, in particular, was a feeder to many programs at the graduate level, including the other "pure" fields of botany, zoology, microbiology, and genetics. In addition, it fed the applied biological sciences and health sciences, many of which were not available on the undergraduate level. In general, biological sciences was a shrinking field during the 1980s, both in undergraduate and in graduate schools.

What were the characteristics of people who remained in "pure" biological sciences in contrast to those who moved into a service-oriented field? Among the nonchangers, about half were female. The female nonchangers tended to be slightly less likely to be pursuing a doctorate (57% indicated they would in 1987) than were the male nonchangers (about 65% of whom intended to pursue a doctorate). In other important respects (GRE scores, age and ethnic composition) the female nonchangers in this field were much like the males.

The undergraduate biological sciences majors who moved to other fields tended to go to health science and services, education, business and public administration, and applied biological/environmental science, in that order. We can work up a profile of the typical person who moved from biological sciences to health sciences and services in 1987. Sixty-four percent were female. Their mean GRE scores were: verbal, 568; quantitative, 570; and analytical, 570--not much lower than the scores of verbal, 571; quantitative, 578; and analytical, 577--for the Biological science majors who remained in biological sciences. They were still quite young (average age of 24), the same as for nonchangers at the time they took the GRE. Their mean GPA of 3.10 in their major compared quite favorably to the 3.12 GPA in major of the average nonchanger.

They were no more likely than nonchangers to be Black, Hispanic, or Asian American (each ethnic group constituted about 4% of each population). They may have been slightly less likely to have a father with a graduate degree (24% did) or a mother with a graduate degree (12% did) than was the average nonchanger (31% of whom had fathers, and 15% mothers, with graduate degrees). There are undoubtedly other compelling reasons (social concerns, family obligations, altruism) which lead people away from a career in "pure" biological science and into a service-oriented field, but from our limited data, the fact of being female seems to be most strongly associated with that decision.

Undergraduate applied biological/environmental science majors (Tables 3.5 and 4.5). This was a relatively small field for both graduate and undergraduate students, attracting about 3,000 students in each group in each year. It includes such fields as audiology, entomology, mining, forestry, and environmental science. The percentage of females in both the undergraduate and graduate programs increased slightly but steadily over the study period, and in 1987 about 37% of undergraduates in this field were female.

About 57% of the undergraduate majors taking the GRE intended to continue in an applied biological or environmental science major. About 30% of those continuing intended to earn a doctorate, whereas over 40% of those changing to other fields are aiming for a doctorate. The changers tended to gravitate toward health sciences or biological sciences.

There was a low representation of minority group members in the cohorts of both undergraduate and graduate students in this field. The percentage of people over 30 in the graduate field grew substantially, from 6% in 1978 to 17% in 1987, but it was still well below the average for all GRE takers (28%). Mean GRE scores for examinees in this field were somewhat higher than average on quantitative and about average on verbal and analytical.

Undergraduate social science majors (Tables 3.6 and 4.6). About one-quarter of undergraduates who took the GRE had majored in a social science field. Approximately 19% of graduate students intended to major in one of these fields. Therefore, there were a substantial number of changers among undergraduate social science majors. In fact, about 40% of undergraduate social science majors changed fields. The fields they gravitated to were education, business, and applied social science, in that order. In 1987, education attracted 4,832 of the 35,814 undergraduate social science majors; 22,310 remained in a social science field.

These two groups of people (nonchangers, and social science-to-education changers) were different in several respects and deserve a detailed examination here. The GRE scores of those who moved into education were low (verbal = 489, quantitative = 472, analytical = 501) compared to those of nonchangers (verbal = 521, quantitative = 517, analytical = 545). With an average GPA in major of 3.09, the social science-to-education changers were once again lower than the nonchangers, whose average GPA in major was 3.32. Changers to education also tended to be older, with an average age of 30, while nonchangers were on average about 25 at the time they took the GRE. Finally, the changers to education were about 67% female but the nonchangers were only about 56% female. It appears that women with relatively low quantitative skills were abandoning careers in a social science field for a less quantitatively demanding career in education. This trend parallels that of the pure biological science majors who migrated to a health services field.

Undergraduate applied social sciences majors (Tables 3.7 and 4.7). Applied social science fields include social work, library science, journalism, and communications. About 70% of undergraduates, and about 74% of graduate students, in this field were female. Black and Hispanic examinees were well represented among the undergraduate majors and particularly among the nonchangers (those who intended to continue in this field). Very few of the examinees who intended to do graduate work (about 15%) in this field were going for a Ph.D. Scores tended to be low; means were well below 500 on each part of the General Test.

About 60% of those who intended to major in this field also did their undergraduate work in the same field. Those who did their undergraduate work in a different field tended to come from social sciences or from arts and humanities. People who migrated from arts and humanities into this field tended to have much higher scores on all three parts of the GRE than did those who came from either the applied social science or social science field.

Undergraduate health sciences majors (Tables 3.8 and 4.8). Health sciences at the undergraduate level was undoubtedly the most female-dominated of all fields; about 89% of undergraduate majors were females. Average GRE scores hovered just below 500, and doctoral aspirations were low--only about 25% of undergraduate health sciences majors aspired to a doctorate. There was a very high percentage of older students. In fact, in 1987, 45% of undergraduate health sciences majors were over 30. This represents a steady increase from 22% in 1978.

About 74% of those who intended to major in a health sciences field in graduate school came from one of these fields as undergraduates. Most of the others came from biological sciences, as discussed above.

About 80% of graduate students in these health sciences and services were female, and the relatively few men who chose to enter these fields differed substantially from the women on several dimensions. The first dimension was ability, in particular, math ability. Male graduate students who intended to major in this broad area had GRE quantitative scores of about 570, whereas the mean score for females was only 495. About 54% of the males intended to pursue a doctorate in this area, but only 27% of the females did. The males also tended to be younger, with only 19% being over 30 years old, as compared to 35% of the females. In fact, the males in this field seemed so different from the females that it is important to look at the specific fields within health sciences and services to see if particular fields attracted men and women of different abilities, or if the gender ratios in each field were very different.

A look at the detailed matrices (which show the transition of majors for each individual major field) reveals, not surprisingly, that more males were intending to major in medicine, veterinary medicine, and dentistry; the majority of females were drawn to nursing and nutrition. Therefore, the health sciences area, at least at the graduate level, is such an eclectic one that it is hard to make generalizations about those who intend to specialize in one of its fields.

In future studies of talent flow, researchers may wish to divide health sciences fields according to degree aspiration so that medicine and veterinary medicine, which attract high-scoring individuals, will be separate from nursing, nutrition, and other fields that tend to attract lower scoring individuals aiming for a master's degree. The talent flow data base, as it now exists, contains matrices for examinees planning to earn a doctorate as well as matrices for the whole population of U.S. citizens taking the General Test.

Any researcher studying talent flow within the health sciences will have to exercise caution in the study design so as not to confound gender, degree aspirations, and field of study. Simply because they are correlated, they are not interchangeable as categories for analysis, and there is a strong tendency to infer causation in the relationships observed between these categories and the mean test scores associated with these categories.

It is also important to remember that medical school applicants often do not take the GRE, so those in the data base may not be representative of all medical school applicants. Most likely, those who take the GRE are also considering other graduate or professional school options, such as physiology, biochemistry, or veterinary medicine. Those programs generally require GRE scores.

Undergraduate education majors (Tables 3.9 and 4.9). Education is among the most popular majors. About 15% of the undergraduates who go on to take the GRE have majored in education, and about 20% of GRE examinees choose education as their graduate school field. These figures were fairly constant throughout the 1980s. Education is also a field with relatively few changers: in 1987, 82% of undergraduate education majors continued in that field.

Undergraduate education majors in the yars studied were predominantly female (79%) and had a higher representation of minorities than did most other fields, although the percentage of Black education majors dropped slightly, from 9% in 1980 to only 6% in 1987. Representation of Hispanics and Asian Americans remained fairly constant. One outstanding feature of undergraduate education majors is a tendency to be older at the time of GRE, and this tendency seems to have increased throughout the 1980s. In 1978 only 25% of the education majors were over 30, but by 1987 this percentage had increased to 44%. GRE scores for education majors increased very slightly over the period but remained relatively low, at 443 verbal, 450 quantitative, and 478 analytical in 1987.

Males who intended to do graduate study in education were different from females in this field in two important respects. First, they were more likely to be pursuing a doctorate (36% of the males in 1987 claimed to be doing so, as opposed to only 20% of the females). Second, an even higher percentage of males (53%) than females (43%) was older than 30 when they took the GRE.

The vast majority (82%) of undergraduate education majors taking the GRE intended to continue their studies in education. The fields attracting the remainder of the undergraduate education majors included social sciences, applied social sciences, arts and humanities, and health sciences, in that order. Undergraduate education majors who moved into other fields tended to have higher GRE scores than those who remained in education.

The graduate education majors who did not come from an undergraduate background in education were from a variety of fields. The GRE scores for these examinees tended to be quite high for graduate education majors but somewhat lower than those of other examinees in their respective undergraduate fields.

Undergraduate business and public administration majors (Tables 3.10 and 4.10). Business is a field that had notable fluctuations during the 1980s. The GRE-taking population may not be representative of either undergraduate business majors or of those intending to pursue graduate studies in business, because many of the more serious business students (those interested in M.B.A. programs, for example) would probably be taking the GMAT. Nevertheless, like students considering medical school, some students consider business as one alternative among many possible fields of graduate study, so they may take the GRE to apply in those other fields.

In spite of the fact that the present study group may be a nonrepresentative sample of undergraduate business majors, some trends may be observed. For example, the number of undergraduate business majors peaked in 1980 at 6,684, declined to 4,399 in 1984, and then rose to 5,832 in 1987. Numbers of GRE examinees intending graduate study in business followed a similar trend, with a high of 15,404 students in 1980, a low of 8,118 in 1984, and a more moderate number of 9,681 in 1987.

It is clear from the above numbers that there were more GRE examinees going into business as a graduate field than there were coming out of a business undergraduate major. In fact, in 1987 a graduate business major attracted more people from the social sciences than from undergraduate business. Undergraduate social science majors interested in business had GRE verbal, quantitative and analytical score means that were about 50 points higher than those of the undergraduate business majors.

Business as a major for both undergraduate and graduate students is a field that became increasingly attractive to women throughout the 1980s. About 49% of undergraduate business majors were female in 1987, in contrast to only 33% in 1980. Among graduate business majors the increase was equally marked: from 41% female in 1980 to 57% female in 1987. Business is also a field that is very attractive to Black examinees, particularly Black female examinees. For example, in 1987, 14% of the females with an undergraduate major in business were Black, 15% of the females with an intended graduate major in business were Black, and 20% of females with both undergraduate and graduate major in business were Black. These figures remained fairly constant throughout the 1980s.

Variables Associated with the Decision to Change Fields

To explore the relationship of background variables and scores to the decision to change major fields, we crosstabulated a changer/nonchanger indicator with background variables that had been dichotomized using the data from 1987.

A person was defined as a changer if he or she moved from an undergraduate major in one of the 10 broad major groups to another broad major group. Therefore a person who had an undergraduate major in physics and who chose to do graduate work in chemistry would not be categorized as a changer, but a person who moved from physics to electrical engineering would.[2]

Cross-tabulations were performed on GRE examinees from 1987 within the 10 broad undergraduate major categories. Seven demographic or background variables were recoded to two categories each. The variables and their recoded categories are as follows:

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[2] We remind the reader that changes within a broad field of study, with the exception of the biological sciences, is rare. This is probably the case because the curriculum that prepares a chemistry major is very different, for example, from the curriculum that prepares a physics major. A chemistry major might, on the other hand, switch to economics because he or she may have taken necessary social science courses while majoring in chemistry, and the mathematics courses taken for a chemistry degree would be equally suitable preparation for economics. Some fields, of course, are exceptions. Computer science, for example, draws people from all academic backgrounds, including other physical sciences, especially mathematics.

Variable	Category 1	Category 2
Gender	Male	Female
Ethnicity	White	Non-White
Year of B.A./B.S.	Still in college	Already out of college
Degree objective	Masters or lower	Doctorate or postdoc.
UGPA in major	B or lower	A- or A GPA
Father's education	Not college grad.	College grad. or above
Hours community serv.	None	One or more per week

Finally, t-tests were performed on the GRE verbal, quantitative and analytical score means of examinees in the changer and nonchanger groups in each of the 10 broad major categories.

Relationship of gender to the decision to change or not to change fields. Table 5.1 shows the relationship between gender and the decision to change, or not to change, fields. For nine of the major fields, the gender composition of the changer group was found to be significantly different from the composition of the nonchanger group. In arts and humanities, physical sciences, engineering, biological sciences, applied biological sciences and social sciences, there were higher percentages of females in the changer than in the nonchanger groups. The reverse was true in applied social sciences, health sciences, education, and business.

There is no doubt that course work in the six former fields is generally more academically rigorous than in the four latter fields. The four applied areas, on the other hand, are more directly service oriented and/or require greater interpersonal skills. It seems that women in the more rigorous fields tend to move to less rigorous, more "people-related" fields, and those in the applied fields tend to stay in those areas.

Tables 5.1 to 5.8 provide an easy way of comparing the number of changers to nonchangers in each field. In general, nonchangers exceeded changers by a ratio of two-to-one (arts and humanities, physical science and math, engineering, social sciences, health sciences, and especially education). In biological sciences, however, the number of changers was almost exactly equal to the number of nonchangers. In applied biological sciences and in applied social sciences, the number of nonchangers was only slightly greater than the number of changers. And in business and public administration, more undergraduate majors were moving out of the field than were staying in.

Relationship with ethnicity. It should be remembered that the data used in all analyses include only U.S. citizens. Therefore, the 11.4% of the changer group for arts and humanities who were non-White were U.S. minority examinees. Several results of the cross-tabulation of ethnicity by the changer/nonchanger indicator were nonsignificant. In other words, the ethnic composition of the changer and nonchanger groups within these fields was not significantly different. In general the percentage of minorities in these groups was below 20%. The notable exception is in the group of business and public admininistration undergraduates who remained in that field for graduate study. Twenty-five percent of these examinees were minority group members; as mentioned above, a large proportion were Black females.

Relationship with year of bachelor's degree. Because this analysis was conducted on the 1987 GRE file, examinees were likely still to be in college if they had graduation years of 1987 or later; anyone graduating in 1986 or earlier was categorized as "already out". Because more than half of GRE examinees in general have completed undergraduate school by the time they take the General Test, it is not surprising that high percentages of both the changers and nonchangers categories in each major field were already out of college. In each field except education, the percentage of the changer group who were already out significantly exceeded the percentage of the nonchanger group who had already completed college.

It is not surprising that examinees who have been out of college for one or more years would be more likely to think of changing fields than would examinees who are still in college at the time they take the GRE. Work experiences and other postcollege activities open new interests and may lead to a desire to pursue a new career path. Large proportions of examinees who change out of arts and humanities, health sciences, and business have already graduated from college.

Relationship with degree objective. Table 5.4 shows the percentages of changers and nonchangers in each undergraduate major who aspired to a doctoral degree. In the four disciplines that are more academically oriented (arts and humanities, physical sciences and math, biological sciences, social sciences), the percentage of doctoral aspirants in the nonchangers group exceeded that in the changers group. Therefore, those who were inclined to go the furthest in an academic field tended to stay in the field in which they did their undergraduate work. Conversely, the six remaining fields (which may be characterized as more "applied") had higher percentages of doctoral aspirants choosing to change fields. The highest percentage of doctoral aspirants was in the group of social science students who were remaining in a social science field for graduate school.

Relationship with undergraduate GPA in major. It seems reasonable that examinees who have performed exceptionally well in course work in their major would consider remaining in that major for graduate study and those with less impressive performance might consider changing fields. This hypothesis seems to be born out by Table 5.5, which shows the percentages of changers and nonchangers in each field who achieved A or A- averages in their majors. In all fields except education and business, the changers group had a significantly higher percentage of A or A- students than did the nonchangers group. This distinction is particularly marked in Arts and humanities, where 63.7% of nonchangers had an A or A- average but only 47.4% of the changers achieved such an average.

The grade distinctions between changers and nonchangers in physical sciences and math and in social sciences were also considerable. In rigorous fields such as math and physical sciences we might expect students who have difficulty mastering the material in their field to change into a less demanding field.

Relationship with father's education. We may hypothesize that students whose parents are more highly educated would concentrate in academically oriented fields and would tend to continue in these fields through graduate school. We dichotomized variables for both father's and mother's education levels to categories of "less than four years of college" and "bachelor's degree or above". In general, mothers were less highly educated than fathers. The level of mother's education seemed to have little relationship to undergraduate field choice or the decision to remain in the field for graduate school. Father's education seemed to be related to change of field in several areas, however. There were somewhat higher percentages of examinees with highly educated fathers in arts and humanities, physical sciences and math, engineering, and biological sciences. In arts and humanities and in physical sciences and math, these percentages were significantly higher for nonchangers than for changers. The reverse was true in the more "applied" fields of health sciences, education, and business: in these fields the changers tended to have more highly educated fathers.

Relationship with community service. A variable for number of hours of community service was dichotomized into two categories: "none" and "one or more hours per week". As might be expected, virtually all (at least 70%) examinees in applied social sciences and education performed some community service during college but fewer than half of engineering students did so.

Examinees changing out of academic fields such as arts and humanities, physical science and math, biological sciences and social sciences were more likely to perform community service than were the examinees remaining in these fields. Conversely, the examinees who remained in such fields as applied social science, health sciences, and education (which include many of the "helping professions") were more likely to perform community service than were the examinees who left these fields.

Relationship with GRE scores. We have conjectured throughout this study that examinees tend to find their niche when applying to graduate school. This involves applying to programs where, first of all, one is likely to be accepted, and second of all, one is likely to be comfortable. Comfort involves finding colleagues with similar, or at least complementary, backgrounds, interests, and abilities. We have explored the relationship between several background variables and the decision to remain in, or change from, one's undergraduate major. Ability level may, however, have an even stronger bearing on this decision. Because GRE scores offer three measurements of ability to pursue graduate study, Table 5.8 shows some complex relationships between scores and the decision to change majors.

In summarizing Table 5.8 we can say that examinees who remain in academic disciplines (such as arts and humanities and physical sciences and math) tend to have higher scores than do undergraduate majors in these fields who decide to pursue other graduate work. Conversely, examinees who move out of such fields as education, business and applied social sciences tend to be higher scoring than the examinees who remain in these fields.

Looking further at Table 5.8, we can see that examinees leaving arts and humanities are not, in general, those with lower verbal scores but those with lower quantitative and analytical scores. In engineering, those with the highest quantitative and analytical scores tend to stay and those with somewhat higher verbal scores may seek other fields. In social sciences, the nonchangers are significantly higher than the changers on all three parts of the GRE.

None of these conclusions are entirely surprising, but they do provide a kind of construct validity for the GRE as an indicator of the general academic ability required to undertake graduate study in various areas. Students who cannot succeed in a rigorous field seem to know that fact before taking the GRE, and they opt for fields that are less rigorous. Students who are outperforming their colleagues in less demanding fields know that they are capable of more challenge, so they switch to more rigorous fields. The scores of both kinds of students subsequently confirm their self-estimates of their abilities.

EXAMPLE 3: A LOOK AT GRADUATE FIELD CHOICE FROM ANOTHER ANGLE

We know from GRE data and other sources that students entering a field such as chemical engineering have higher quantitative skills and probably lower verbal skills than do students entering a field such as comparative literature. This is not a very profound observation, and, indeed, we would hope that studies of talent flow would move beyond the obvious. But in this same light, it would be informative to know if students who have already completed an undergraduate major in one subject select a graduate field in accordance with their relative verbal and quantitative skills. We explored this question in a graphic mode, plotting mean GRE verbal scores on one axis and mean quantitative scores on the other.[3]

Within the graph are points for graduate fields having the ordered pair of verbal and quantitative means for the group under consideration. More simply, consider the following chart.

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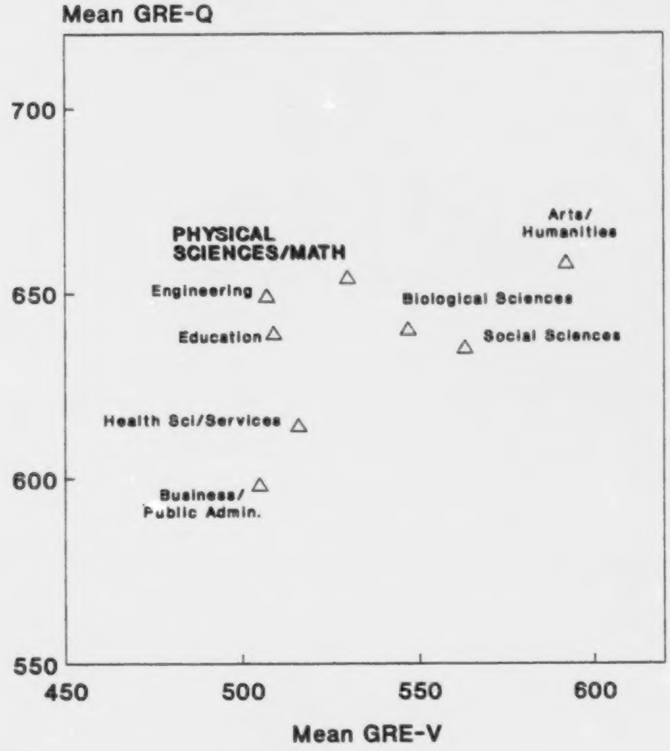
[3] We found that plots of verbal against analytical, or quantitative against analytical, were not very informative. The analytical score behaved like an "average" of the other two and did not give the striking separation of points that we observe with verbal versus quantitative.

GRE Verbal vs Quant. Score Means in 1987
for Physical Science and Math Majors
Planning Graduate Work in Selected Areas



U.S. cit. only. N › 250 in each area.

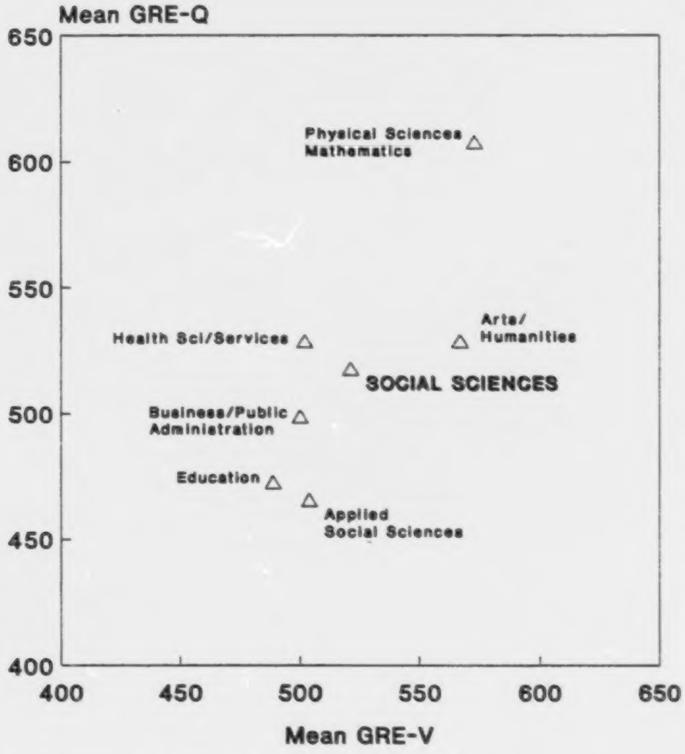
This chart was generated for all examinees having undergraduate majors in physical sciences or mathematics. Those planning to do their graduate work in business or a related area of administration tended to score lower on both the verbal and quantitative test sections than did those planning to continue in other fields. Those planning to switch to arts and humanities scored quite high on both sections; those switching to engineering scored high in quantitative but relatively low in verbal. Their verbal scores were approximately the same as the scores of physical science major planning to study education, health sciences and services, and business.

It is especially interesting to note that people with extremely high verbal skills left the physical sciences for the humanities even though their quantitative skills were as high as or higher than those of their colleagues who continued in the physical sciences.

This kind of analysis suggests that people change fields not just because of economic conditions or because they cannot make it at the graduate level in the field in which they have done their undergraduate work. For a highly verbal as well as highly quantitative science student to leave the sciences for the humanities suggests an important lack of verbal challenge for that student in the physical sciences.

The following graph shows the intended graduate fields of study for examinees earning a bachelor's degree in the social sciences.

GRE Verbal vs Quant. Score Means in 1987
for Majors in Social Sciences
Planning Graduate Work in Selected Areas

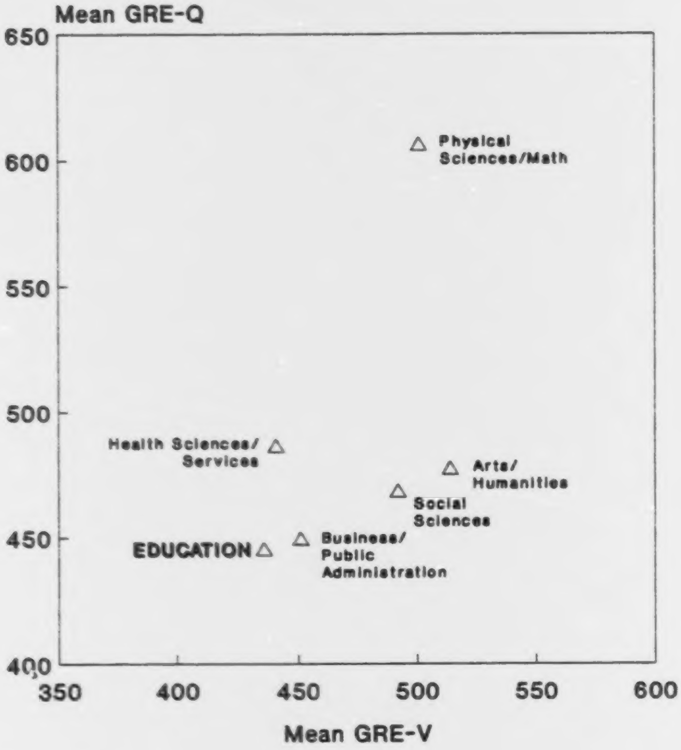


U.S. cit. only. N › 300 in each area.

What stands out most remarkably is that a sizable number of social science majors planned to switch to the physical sciences or mathematics, and that those who were switching had verbal and quantitative scores considerably higher than did those remaining in the social sciences. Examinees choosing to move into the applied social sciences had quantitative scores that were not up to the average for students continuing in the social sciences. The abilities of those moving into education and business fell short of both verbal and quantitative skills.

Examinees who majored in education also show a very informative pattern.

GRE Verbal vs Quant. Score Means in 1987
for Majors in Education
Planning Graduate Work in Selected Areas



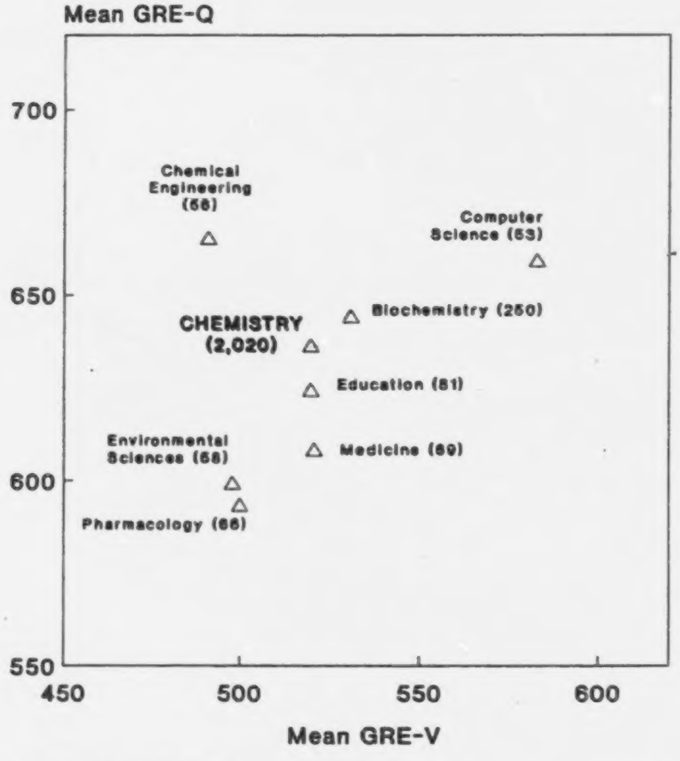
U.S. citizens only.

Those who planned to remain in education for their graduate work earned the lowest combination of verbal and quantitative score averages. Education majors with the highest scores on both sections switched to the physical sciences or mathematics. Much higher verbal and slightly higher quantitative students moved into the arts and humanities or social sciences.

Having seen that clear patterns exist to explain the movement from one broad field of study to another, we selected several specific major fields to see if students choose their area of specialization in accordance with relative verbal and quantitative skills.

This first chart is for the 3,356 examinees who reported an undergraduate major in chemistry in 1987.

GRE Verbal vs Quant. Score Means in 1987 for Chemistry Majors Planning Graduate Study in Frequently Chosen Fields

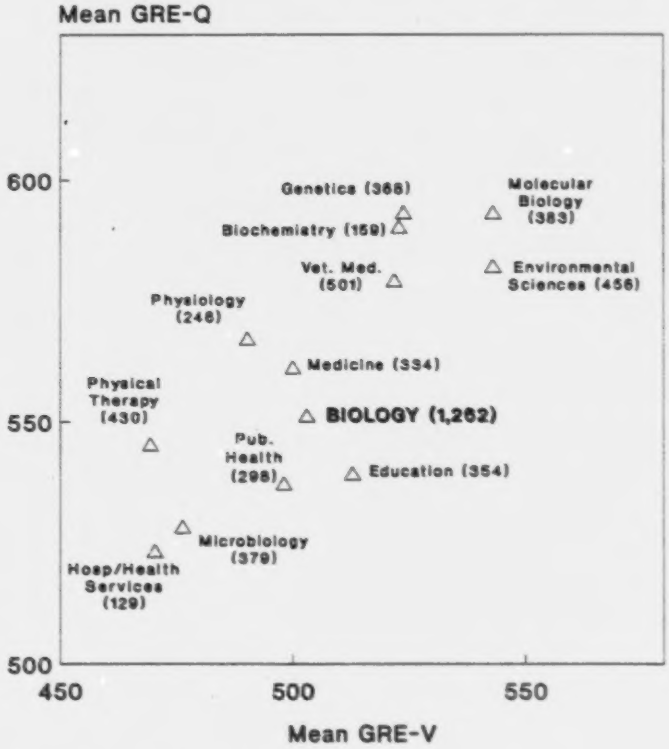


U.S. cit. only. Number in parentheses.

Of this group of chemistry majors, 56 planned to switch to chemical engineering for their graduate work. The average verbal score of those 56 students was lower than the average verbal score of students who intended to continue in chemistry, and their quantitative scores were higher. This profile would fit well with the images of people in both of these professions. Notice that 53 chemistry majors with higher average verbal and quantitative scores than their colleagues planned to do graduate work in computer science. Those switching to education or medicine had lower quantitative abilities than those of their colleagues, and 66 of the chemistry majors with lower verbal and quantitative skills than those of their colleagues switched to pharmacology.

Many of the chemistry majors who changed fields switched to a quite different area, probably because chemistry does not lead to a great many graduate specializations. Biology, on the other hand, does branch into many specialties at the graduate level. The next graph shows that the specialties seem to be associated with relative amounts of verbal and quantitative skill.

GRE Verbal vs Quant. Score Means in 1987
for Biology Majors Planning Graduate
Study in Frequently Chosen Fields



U.S. cit. only. Number in parentheses.

The high verbal, high quantitative biology majors seemed to aspire to molecular biology, a field that is certainly in the spotlight of science today. The biology majors with the lowest average verbal and quantitative scores were planning to enter hospital and health services. There are essentially no fields with sizable numbers attracting people with high verbal/low quantitative, or vice versa. The all-around bright students head for molecular biology, environmental sciences, genetics, biochemistry, and veterinary medicine. Those with relatively low academic skills, compared with other biology majors, head for hospital and health services, microbiology, public health, physical therapy, and education.

COMMENT ON THE EXAMPLES

The limited analyses we have done with the talent flow data base have permitted us to make some generalizations about GRE examinees over a 10-year period and about their choices to remain in, or move out of, a major field. We have been able, through use of the matrix data, to describe the background and score characteristics of groups of individuals who make certain transitions in major (for example, from physical sciences to education). We have been able, through cross-tabulations of the raw data, with associated significance tests, to determine which background and score variables have a statistically significant relationship to the choice to change, or not to change, majors for groups of people in 10 broad majors.

We have been able to draw comparisons between males and females in the same fields, and we have been able to note the differences between academically oriented majors (such as arts and humanities, physical science and math, biological sciences, social sciences and, to a lesser extent, engineering) and the service-oriented majors (applied biological sciences, applied social sciences, health sciences, education, and business) in terms of the examinees they attract and retain.

Many of the conclusions we have drawn conform to prior experience and expectation. We have tried to examine some of the demographic characteristics (gender, ethnicity), background variables (year of bachelor's degree, degree objective, father's education, hours of community service) and abilities (undergraduate GPA in major and GRE scores) that may have a bearing on decisions about graduate field of study. We have not, of course, been able to explain any of the idiosyncratic reasons that lead people to switch from one field to another.

In a concurrent GRE study, we are surveying a sample of examinees earning bachelor's degrees in math, natural sciences, and engineering to determine some of the factors that may lead them to change fields or to remain in the same field for graduate school. Information from that survey will enhance our understanding of patterns we are observing in the talent flow data base.

SUGGESTIONS FOR FURTHER RESEARCH

Within the limits of this initial project, it has been impossible to analyze all major fields and combinations of major fields or to explore the data in the light of broader economic or social trends that would be likely to affect the directions of talent flow.

Throughout this report we have alluded to a number of ideas for further research. In this section we will briefly outline some of these suggestions. We welcome further ideas and encourage other researchers to explore these files themselves.

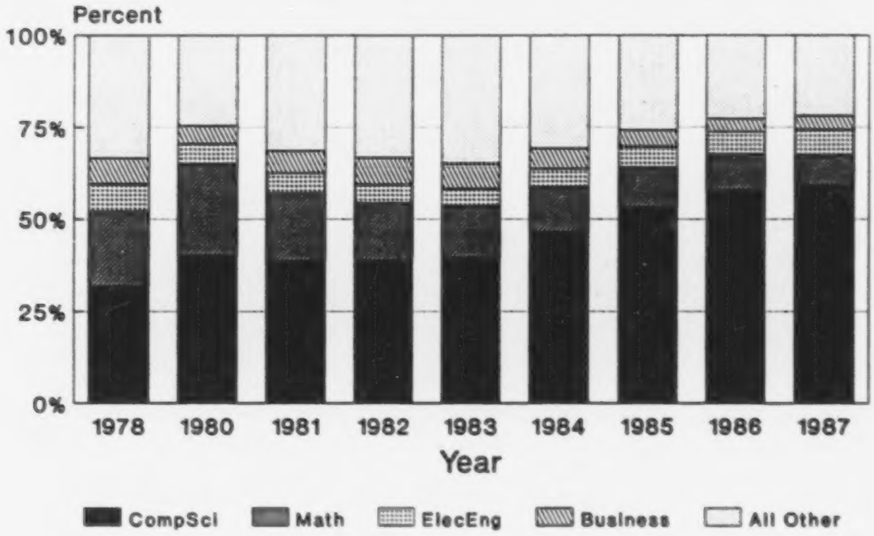
RESEARCH ON INDIVIDUAL FIELDS OF STUDY

The current project was unable to deal with every major field. Persons in specific occupations will be interested in the flow of talent into and out of their fields. They may also be interested in the undergraduate majors that feed their graduate field and how those majors may be changing over time. This question would be of particular interest in the newer fields, such as computer science. Historically, most computer scientists studied either mathematics or electrical engineering; those interested in business programming applications often majored in business. Once computer science acquired its own identity, some students began majoring in computer science at the undergraduate level. To what extent did a shift to computer science as an undergraduate major occur?

As an example of the kind of analysis that would be informative, we generated a graph showing trends from 1978 to 1987 in the proportional undergraduate makeup of the body of examinees planning graduate study in computer science.

The following chart shows the proportional distribution of undergraduate major fields among examinees planning graduate work in computer science.

Undergraduate Majors of Prospective Graduate Students in Computer Science



U.S. citizens only

Of those examinees planning graduate work in computer science, the proportion who did their undergraduate studies in computer science essentially doubled over the 10-year period, whereas the proportion with degrees in mathematics dropped sharply from 20% to just 8%.

electrical engineering and business continued to supply 10% to 15% of the students headed for computer science.

A study of this sort could proceed to show how test scores and other student characteristics were associated with the change in student composition and undergraduate preparation.

MODELS TO EXPLAIN TRENDS

The present study, to some extent, has been conducted in a vacuum, with very little attention given to social or economic conditions that might account for patterns or trends. We intentionally gave little interpretation to our observations because, in the absense of a well-constructed and comprehensive model, interpretations are mere speculation.

We might, for example, have examined parallels between numbers of examinees planning to study engineering and starting salaries in the engineering professions. If we had found such a parallel, we might have been inclined to assign a causal connection between them. What other reason would there be to look for that particular parallel? In actuality, growth in engineering is a complex issue deserving a model that includes many social and economic variables. Furthermore, such a study deserves the expertise of economists, engineers, and other specialists who can point to the many sources of influence on students' choices of engineering as a profession.

Any attempt to study the flow of talent into or out of a particular field will require specialized professional expertise and, in addition, a careful analysis of material released by the news media. An earlier study of students in the humanities (Grandy & Courtney, 1985) found numerous media reports on the rising cost of education, unemployability of humanities graduates, and declining quality of humanities majors. Some these reports distorted the facts and may have been written to create controversy. Their impact may even have been to drive students away from the humanities and subsequently to create a shortage.

Students' decisions regarding a field of study can rest only on the information they are able to access. A considerable amount of that information is first processed by the media. It becomes increasingly important that we, as researchers, separate the facts from the distorted reports in order to weight their relative impacts on student decision making.

STUDIES OF PARTICULAR SUBPOPULATIONS

The talent flow data base matrices generated on GRE General Test takers thus far are for all U.S. citizens, males, females, examinees planning to earn a doctorate, and examinees over age 30. Within these matrices there is minority information, statistics on parents' education, and other data. These, we assumed, would be the most sought after kinds of information.

We could easily generate matrices, however, for special populations. A study could compare each of the Hispanic populations, for example, or it could trace patterns in test scores and major field interests of Native Americans.

None of the existing matrices contain information about foreign examinees. Special matrices can be constructed from the individual examinee data base to compare talent flow among U.S. citizens, resident aliens, and all other test takers.

Generally when we speak of subpopulations, we tend to think of female and minority groups. Equally interesting might be analyses based on parents' education or other variables. We know that some major fields more than others still attract students from predominantly high (or low) socioeconomic levels. In the 1987 GRE data base, for example, 40% of the male examinees earning bachelor's degrees in chemistry had fathers with a graduate or professional degree. Only 15% of the males with degrees in education had fathers with a graduate or professional degree. These statistics can, of course, be broken down by ethnic group to see if it is father's education, more than ethnicity, that is related to major field choice.

Similarly, we can conduct studies of talent flow among older students (compared with younger ones) or among examinees who have been out of school for a while (compared with those who are currently enrolled). The latter study could have implications for talent flow among second-career populations.

These are only a few suggestions for further research on talent flow using the GRE data base. We hope that this study has served to introduce this data base and to provide direction to its research possibilities.

TABLE 1

TRENDS TABLE FOR U.S. CITIZENS TAKING THE GRE, TOTAL GROUP
MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	159907	171780	145944	128740	117777	118727	133636	141179	148841
% OF TOTAL EXAMINEES	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
% WHO ARE FEMALE	55.14	52.53	56.41	55.78	55.32	55.74	56.30	56.31	56.46
% WHO ARE BLACK	6.39	6.67	6.14	6.19	5.95	5.58	5.33	5.18	5.34
% WHO ARE HISPANIC	2.73	2.67	2.81	3.22	3.24	3.44	3.39	3.20	3.43
% WHO ARE ASIAN AMERICAN	1.60	1.48	1.73	1.89	1.94	2.14	2.28	2.53	2.78
% PURSUING DOCTORATE	37.02	38.47	37.15	37.96	37.41	38.15	37.21	38.62	39.13
% OLDER THAN 30	15.09	24.01	21.02	22.18	22.60	23.99	25.31	27.02	27.70
GRE VERBAL MEAN	501	505	500	499	503	505	502	506	505
GRE QUANTITATIVE MEAN	515	516	517	522	530	529	527	533	531
GRE ANALYTICAL MEAN	521	515	524	520	528	536	538	542	541

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	70742	80520	62690	55635	52222	52028	57846	61175	64174
% OF TOTAL EXAMINEES	44.24	46.87	42.95	43.21	44.34	43.82	43.29	43.33	43.12
% WHO ARE BLACK	4.72	5.01	4.70	4.64	4.43	4.17	4.00	3.93	4.17
% WHO ARE HISPANIC	3.00	2.84	3.04	3.36	3.47	3.52	3.40	3.41	3.57
% WHO ARE ASIAN AMERICAN	1.85	1.61	1.94	2.24	2.33	2.55	2.79	3.05	3.43
% PURSUING DOCTORATE	44.34	46.39	44.14	43.99	42.94	44.03	43.20	44.30	44.76
% OLDER THAN 30	11.79	22.27	17.88	18.74	19.22	20.91	21.37	23.27	23.86
GRE VERBAL MEAN	509	510	509	508	514	518	513	517	517
GRE QUANTITATIVE MEAN	559	557	563	568	577	577	577	581	580
GRE ANALYTICAL MEAN	533	526	537	531	540	556	556	559	558

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	88165	90234	82331	71801	65157	66183	75238	79500	84040
% OF TOTAL EXAMINEES	55.14	52.53	56.41	55.77	55.32	55.74	56.30	56.31	56.46
% WHO ARE BLACK	7.74	8.14	7.24	7.38	7.16	6.68	6.34	6.14	6.24
% WHO ARE HISPANIC	2.51	2.53	2.64	3.12	3.05	3.38	3.39	3.05	3.33
% WHO ARE ASIAN AMERICAN	1.40	1.38	1.57	1.62	1.64	1.83	1.90	2.14	2.30
% PURSUING DOCTORATE	31.14	31.38	31.85	33.31	32.98	33.53	32.63	34.26	34.85
% OLDER THAN 30	17.66	25.45	23.31	24.73	25.24	26.33	28.26	29.88	30.56
GRE VERBAL MEAN	495	500	494	492	494	494	493	498	496
GRE QUANTITATIVE MEAN	479	480	482	486	492	491	489	496	495
GRE ANALYTICAL MEAN	511	504	514	512	519	520	523	528	528

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.1

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN ARTS/HUMANITIES
MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	20293	22347	18621	16479	14688	14927	17184	18497	19649
% OF TOTAL EXAMINEES	12.69	13.01	12.76	12.80	12.47	12.57	12.86	13.10	13.20
% WHO ARE FEMALE	49.38	49.22	50.48	50.47	50.71	50.74	50.76	52.02	52.31
% WHO ARE BLACK	3.40	3.83	3.29	3.28	3.29	3.12	3.07	2.95	3.04
% WHO ARE HISPANIC	2.18	2.25	2.38	2.55	2.70	3.01	2.72	2.90	3.05
% WHO ARE ASIAN AMERICAN	1.31	1.15	1.21	1.38	1.45	1.64	1.68	1.57	1.82
% PURSUING DOCTORATE	37.99	40.97	37.54	38.29	39.96	41.12	40.25	42.79	44.64
% OLDER THAN 30	11.60	19.13	17.30	18.52	19.98	21.16	22.74	24.76	24.67
GRE VERBAL MEAN	540	546	534	532	540	541	539	546	548
GRE QUANTITATIVE MEAN	506	506	505	510	514	514	511	514	516
GRE ANALYTICAL MEAN	533	528	533	527	532	542	542	547	549

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10146	11237	9117	8005	7188	7295	8395	8803	9290
% OF TOTAL EXAMINEES	6.34	6.54	6.25	6.22	6.10	6.14	6.28	6.24	6.24
% WHO ARE BLACK	2.89	3.33	3.33	3.05	3.44	3.06	3.10	2.76	3.04
% WHO ARE HISPANIC	2.17	2.27	2.23	2.22	2.66	2.77	2.60	2.93	2.94
% WHO ARE ASIAN AMERICAN	1.19	0.93	0.98	1.27	1.28	1.59	1.49	1.36	1.53
% PURSUING DOCTORATE	41.20	44.04	40.00	40.61	41.35	41.45	41.91	44.79	45.94
% OLDER THAN 30	9.26	18.62	15.60	16.54	18.59	20.10	21.29	23.83	23.48
GRE VERBAL MEAN	538	542	532	530	536	539	537	543	545
GRE QUANTITATIVE MEAN	531	530	529	536	537	539	537	538	539
GRE ANALYTICAL MEAN	535	530	534	527	531	547	546	550	550

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10018	10999	9400	8321	7448	7574	8722	9622	10279
% OF TOTAL EXAMINEES	6.26	6.40	6.44	6.46	6.32	6.38	6.53	6.82	6.91
% WHO ARE BLACK	3.94	4.35	3.26	3.58	3.14	3.16	3.05	3.12	3.03
% WHO ARE HISPANIC	2.19	2.23	2.53	2.94	2.73	3.25	2.85	2.88	3.18
% WHO ARE ASIAN AMERICAN	1.42	1.40	1.44	1.49	1.61	1.70	1.87	1.76	2.09
% PURSUING DOCTORATE	34.78	37.89	35.22	35.89	38.57	40.88	38.70	41.00	43.51
% OLDER THAN 30	13.88	19.58	18.94	20.26	21.21	22.09	24.06	25.62	25.62
GRE VERBAL MEAN	543	549	536	534	545	542	542	547	551
GRE QUANTITATIVE MEAN	480	481	482	485	491	490	487	493	496
GRE ANALYTICAL MEAN	532	525	532	527	534	537	539	544	548

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.2

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN PHYSICAL SCIENCES OR MATH

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	12400	12096	12261	12548	13549	13256	14187	14693	14592
% OF TOTAL EXAMINEES	7.75	7.04	8.40	9.75	11.50	11.17	10.62	10.41	9.80
% WHO ARE FEMALE	26.57	24.93	29.57	29.96	29.32	30.13	30.70	30.52	29.24
% WHO ARE BLACK	3.07	3.23	3.20	3.35	3.47	3.39	3.43	3.80	3.95
% WHO ARE HISPANIC	2.15	1.47	2.17	2.23	2.67	2.68	2.62	2.34	2.88
% WHO ARE ASIAN AMERICAN	2.39	2.08	2.66	2.78	2.89	3.18	3.93	4.40	4.73
% PURSUING DOCTORATE	47.10	51.58	44.54	42.65	41.93	43.93	44.56	45.83	47.80
% OLDER THAN 30	6.03	11.90	10.11	11.84	12.42	13.60	14.10	15.29	16.18
GRE VERBAL MEAN	531	536	533	528	532	535	529	532	532
GRE QUANTITATIVE MEAN	643	652	639	636	638	641	644	649	652
GRE ANALYTICAL MEAN	584	583	585	584	586	603	606	610	612

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	9030	9024	8562	8685	9531	9200	9788	10152	10272
% OF TOTAL EXAMINEES	5.65	5.25	5.87	6.75	8.09	7.75	7.32	7.19	6.90
% WHO ARE BLACK	2.46	2.36	2.42	2.39	2.42	2.50	2.74	2.65	2.73
% WHO ARE HISPANIC	1.88	1.27	2.08	2.14	2.65	2.42	2.42	2.24	2.82
% WHO ARE ASIAN AMERICAN	2.17	1.88	2.38	2.53	2.71	2.85	3.64	3.78	4.31
% PURSUING DOCTORATE	50.35	54.99	48.25	45.62	44.91	47.05	47.91	49.17	50.60
% OLDER THAN 30	5.94	12.28	9.78	11.50	12.10	13.21	13.75	15.02	16.32
GRE VERBAL MEAN	532	538	536	531	536	539	533	537	538
GRE QUANTITATIVE MEAN	654	663	651	648	649	653	656	661	663
GRE ANALYTICAL MEAN	584	583	587	582	584	605	607	611	613

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3295	3015	3626	3758	3972	3994	4355	4485	4267
% OF TOTAL EXAMINEES	2.06	1.76	2.48	2.92	3.37	3.36	3.26	3.18	2.87
% WHO ARE BLACK	4.76	5.77	5.10	5.64	5.99	5.33	4.91	6.35	6.80
% WHO ARE HISPANIC	2.91	2.09	2.40	2.42	2.67	3.30	3.08	2.61	2.95
% WHO ARE ASIAN AMERICAN	3.00	2.65	3.28	3.35	3.32	3.98	4.57	5.84	5.72
% PURSUING DOCTORATE	37.94	41.23	35.63	35.79	34.92	36.65	37.15	38.46	41.11
% OLDER THAN 30	6.19	10.52	10.87	12.48	13.07	14.42	14.84	15.86	15.77
GRE VERBAL MEAN	526	530	524	522	522	525	520	519	518
GRE QUANTITATIVE MEAN	613	621	609	607	609	615	619	623	626
GRE ANALYTICAL MEAN	584	582	580	588	590	600	604	605	610

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.3

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN ENGINEERING

MALES AND FEMALES

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7344	6956	7555	7793	8467	8929	10213	11618	12102
% OF TOTAL EXAMINEES	4.59	4.05	5.18	6.05	7.19	7.52	7.64	8.23	8.13
% WHO ARE FEMALE	13.85	11.49	14.41	16.30	16.85	16.88	16.96	18.39	17.90
% WHO ARE BLACK	2.76	2.92	3.49	3.62	3.04	3.64	3.32	3.25	3.98
% WHO ARE HISPANIC	3.35	3.12	3.18	3.35	3.46	3.39	3.67	3.89	4.06
% WHO ARE ASIAN AMERICAN	5.41	4.72	5.29	6.54	5.86	6.65	6.87	8.00	9.11
% PURSUING DOCTORATE	26.66	28.88	28.34	28.76	29.01	29.60	28.96	28.10	28.21
% OLDER THAN 30	5.12	12.99	7.82	8.30	8.43	10.02	9.47	10.62	11.17
GRE VERBAL MEAN	517	517	515	514	524	522	515	516	512
GRE QUANTITATIVE MEAN	673	671	670	670	675	675	677	679	677
GRE ANALYTICAL MEAN	586	579	587	587	595	610	609	610	607

MALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	6292	6118	6414	6461	7020	7380	8444	9455	9891
% OF TOTAL EXAMINEES	3.93	3.56	4.39	5.02	5.96	6.22	6.32	6.70	6.65
% WHO ARE BLACK	2.40	2.48	3.16	3.23	2.55	3.09	2.59	2.76	3.20
% WHO ARE HISPANIC	3.46	3.17	3.32	3.47	3.60	3.29	3.61	3.69	4.01
% WHO ARE ASIAN AMERICAN	5.18	4.76	4.96	6.33	5.70	6.54	6.69	7.70	8.97
% PURSUING DOCTORATE	26.56	28.95	28.52	28.83	28.76	29.88	28.87	28.59	28.58
% OLDER THAN 30	5.43	13.61	8.41	9.05	9.04	10.62	10.14	10.99	11.87
GRE VERBAL MEAN	513	514	512	511	521	520	513	515	511
GRE QUANTITATIVE MEAN	676	676	673	674	679	678	681	684	682
GRE ANALYTICAL MEAN	584	578	584	581	590	606	606	606	604

FEMALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1017	799	1089	1270	1427	1507	1732	2137	2166
% OF TOTAL EXAMINEES	0.64	0.47	0.75	0.99	1.21	1.27	1.30	1.51	1.46
% WHO ARE BLACK	5.01	6.26	5.51	5.67	5.40	6.30	6.76	5.38	7.57
% WHO ARE HISPANIC	2.65	2.75	2.39	2.60	2.80	3.72	3.93	4.82	4.34
% WHO ARE ASIAN AMERICAN	6.88	4.38	7.44	7.56	6.73	7.23	7.91	9.36	9.83
% PURSUING DOCTORATE	27.43	28.29	27.00	28.27	30.06	28.53	29.10	25.97	26.32
% OLDER THAN 30	3.08	7.48	4.07	4.61	5.57	6.96	6.06	8.88	7.96
GRE VERBAL MEAN	537	544	531	529	536	535	525	519	517
GRE QUANTITATIVE MEAN	655	633	650	648	658	658	660	657	658
GRE ANALYTICAL MEAN	602	586	605	615	619	628	624	623	624

[*] DATA FOR 1979 NOT AVAILABLE

TABLE 2.4

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN BIOLOGICAL SCIENCES

MALES AND FEMALES

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	11017	13287	9929	8828	6811	6621	7325	7610	7852
% OF TOTAL EXAMINEES	6.89	7.73	6.80	6.86	5.78	5.58	5.48	5.39	5.28
% WHO ARE FEMALE	45.89	40.84	47.48	49.17	48.44	51.17	49.62	50.55	50.43
% WHO ARE BLACK	3.58	3.43	3.73	4.03	4.11	4.36	4.14	3.73	3.64
% WHO ARE HISPANIC	2.73	2.52	3.01	3.65	3.71	4.59	3.55	4.22	4.36
% WHO ARE ASIAN AMERICAN	2.37	2.14	2.29	2.25	2.73	2.95	3.14	3.76	4.09
% PURSUING DOCTORATE	56.33	58.51	56.06	56.29	58.41	58.41	59.43	61.37	60.49
% OLDER THAN 30	4.72	9.50	7.24	8.54	8.85	10.69	10.22	11.54	11.91
GRE VERBAL MEAN	523	526	520	521	520	519	520	521	518
GRE QUANTITATIVE MEAN	572	576	572	573	581	575	580	580	578
GRE ANALYTICAL MEAN	560	553	558	556	564	569	575	576	575

MALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5897	7778	5161	4389	3498	3216	3666	3733	3855
% OF TOTAL EXAMINEES	3.69	4.53	3.54	3.41	2.97	2.71	2.74	2.64	2.59
% WHO ARE BLACK	2.65	2.56	2.83	3.01	3.26	3.36	3.19	3.27	2.88
% WHO ARE HISPANIC	2.66	2.38	2.77	3.62	3.66	4.23	3.46	4.10	4.31
% WHO ARE ASIAN AMERICAN	2.19	2.13	2.29	2.21	2.72	2.74	3.44	3.91	4.10
% PURSUING DOCTORATE	60.45	61.80	61.25	61.56	62.52	63.53	63.64	64.80	64.80
% OLDER THAN 30	3.63	8.89	6.39	7.72	8.35	10.62	9.54	11.25	11.36
GRE VERBAL MEAN	519	519	520	519	519	520	519	521	521
GRE QUANTITATIVE MEAN	589	590	590	591	595	592	597	594	596
GRE ANALYTICAL MEAN	558	549	557	548	556	569	573	572	574

FEMALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5062	5426	4714	4340	3299	3388	3635	3847	3960
% OF TOTAL EXAMINEES	3.17	3.16	3.23	3.37	2.80	2.85	2.72	2.72	2.66
% WHO ARE BLACK	4.62	4.64	4.71	4.86	5.03	5.34	5.03	4.19	4.42
% WHO ARE HISPANIC	2.77	2.76	3.29	3.62	3.79	4.96	3.66	4.37	4.42
% WHO ARE ASIAN AMERICAN	2.55	2.19	2.27	2.30	2.76	3.16	2.86	3.59	4.09
% PURSUING DOCTORATE	51.40	53.63	50.49	51.11	53.96	53.51	55.24	57.97	56.16
% OLDER THAN 30	5.92	10.34	8.13	9.32	9.30	10.77	10.87	11.78	12.41
GRE VERBAL MEAN	528	536	520	524	521	518	521	522	515
GRE QUANTITATIVE MEAN	552	556	553	555	565	559	563	566	560
GRE ANALYTICAL MEAN	563	557	560	564	573	568	579	580	577

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[*] DATA FOR 1979 NOT AVAILABLE

TABLE 2.5

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN APPLIED BIOLOGICAL/ENVIRONMENTAL SCIENCE

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2634	2762	2399	2114	2674	2754	2898	3129	3006
% OF TOTAL EXAMINEES	1.65	1.61	1.64	1.64	2.27	2.32	2.17	2.22	2.02
% WHO ARE FEMALE	29.73	24.95	31.97	29.90	38.29	36.71	36.89	36.66	37.33
% WHO ARE BLACK	1.71	1.88	2.17	2.03	1.91	2.25	1.52	1.98	2.10
% WHO ARE HISPANIC	2.39	2.06	2.33	2.18	2.66	2.51	2.76	2.17	2.50
% WHO ARE ASIAN AMERICAN	0.95	1.16	1.00	0.90	1.16	0.84	0.79	1.34	1.10
% PURSUING DOCTORATE	29.50	30.49	30.39	27.53	29.32	35.51	34.23	33.75	36.09
% OLDER THAN 30	5.63	12.67	9.25	9.77	11.25	13.19	13.23	17.20	17.38
GRE VERBAL MEAN	491	487	486	487	498	508	500	501	506
GRE QUANTITATIVE MEAN	552	549	550	552	559	558	556	556	561
GRE ANALYTICAL MEAN	537	525	532	531	544	556	555	555	558

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1834	2055	1616	1456	1645	1735	1818	1971	1874
% OF TOTAL EXAMINEES	1.15	1.20	1.11	1.13	1.40	1.46	1.36	1.40	1.26
% WHO ARE BLACK	1.69	2.00	2.35	1.85	1.76	2.48	1.60	2.18	1.76
% WHO ARE HISPANIC	2.67	2.29	2.54	2.13	3.34	2.59	3.14	2.28	2.13
% WHO ARE ASIAN AMERICAN	0.60	1.12	1.05	0.76	0.97	0.63	0.66	1.27	0.80
% PURSUING DOCTORATE	30.53	31.29	30.26	29.05	31.19	37.69	36.63	33.74	36.87
% OLDER THAN 30	6.16	14.93	10.75	11.67	13.89	14.85	15.46	19.38	17.99
GRE VERBAL MEAN	480	477	477	478	487	501	490	491	498
GRE QUANTITATIVE MEAN	557	554	555	556	564	566	562	561	567
GRE ANALYTICAL MEAN	529	517	523	519	531	549	545	544	550

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	781	689	767	628	1024	1011	1069	1147	1122
% OF TOTAL EXAMINEES	0.49	0.40	0.53	0.49	0.87	0.85	0.80	0.81	0.75
% WHO ARE BLACK	1.54	1.60	1.83	2.39	2.15	1.88	1.40	1.66	2.67
% WHO ARE HISPANIC	1.79	1.45	1.96	2.23	1.56	2.37	2.15	2.01	3.12
% WHO ARE ASIAN AMERICAN	1.66	1.31	0.91	1.27	1.46	1.19	0.94	1.48	1.60
% PURSUING DOCTORATE	27.27	28.30	30.77	25.80	26.46	31.75	30.12	33.91	34.85
% OLDER THAN 30	4.25	5.86	5.64	5.29	7.07	10.36	9.40	13.46	16.17
GRE VERBAL MEAN	517	516	506	508	516	520	516	519	519
GRE QUANTITATIVE MEAN	540	533	540	543	552	546	546	547	550
GRE ANALYTICAL MEAN	557	547	552	559	564	568	571	573	572

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.6

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	29402	32035	27531	24469	20953	21798	24331	25996	28347
% OF TOTAL EXAMINEES	18.39	18.65	18.86	19.01	17.79	18.36	18.21	18.41	19.05
% WHO ARE FEMALE	51.68	47.76	54.38	55.69	55.60	55.76	56.36	56.45	56.42
% WHO ARE BLACK	7.07	7.00	6.64	6.72	6.80	6.19	5.48	5.24	5.13
% WHO ARE HISPANIC	3.10	3.26	3.21	3.51	3.61	3.98	3.86	3.66	3.65
% WHO ARE ASIAN AMERICAN	1.26	1.22	1.50	1.56	1.66	1.72	1.78	1.76	1.81
% PURSUING DOCTORATE	60.72	61.24	60.47	61.95	61.89	63.04	61.47	63.16	63.32
% OLDER THAN 30	12.51	21.14	18.06	19.47	19.95	20.99	21.23	22.88	23.06
GRE VERBAL MEAN	521	527	520	516	522	522	518	525	523
GRE QUANTITATIVE MEAN	508	512	510	511	516	514	513	519	519
GRE ANALYTICAL MEAN	531	526	535	522	530	536	539	544	544

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	14035	16535	12402	10623	9233	9547	10525	11240	12235
% OF TOTAL EXAMINEES	8.78	9.63	8.50	8.25	7.84	8.04	7.88	7.96	8.22
% WHO ARE BLACK	5.17	5.62	5.35	5.61	5.51	4.52	4.45	4.35	4.34
% WHO ARE HISPANIC	3.40	3.46	3.38	3.77	3.86	4.37	3.82	3.94	3.72
% WHO ARE ASIAN AMERICAN	1.35	1.20	1.53	1.55	1.82	1.56	1.72	1.66	1.76
% PURSUING DOCTORATE	62.74	63.09	61.51	62.50	61.28	62.90	60.46	62.62	62.58
% OLDER THAN 30	10.55	21.09	16.80	17.90	18.86	20.06	20.44	22.68	22.59
GRE VERBAL MEAN	525	527	524	520	528	533	526	534	533
GRE QUANTITATIVE MEAN	535	533	537	537	544	543	541	546	544
GRE ANALYTICAL MEAN	534	527	538	521	531	544	544	549	548

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	15196	15301	14970	13627	11650	12155	13714	14674	15994
% OF TOTAL EXAMINEES	9.50	8.91	10.26	10.58	9.89	10.24	10.26	10.39	10.75
% WHO ARE BLACK	8.83	8.48	7.66	7.60	7.78	7.49	6.27	5.94	5.75
% WHO ARE HISPANIC	2.81	3.05	3.10	3.32	3.43	3.68	3.89	3.46	3.59
% WHO ARE ASIAN AMERICAN	1.18	1.25	1.50	1.58	1.52	1.84	1.84	1.84	1.86
% PURSUING DOCTORATE	58.87	59.23	59.59	61.60	62.38	63.09	62.24	63.57	63.91
% OLDER THAN 30	14.23	21.08	19.03	20.59	20.73	21.66	21.79	23.01	23.34
GRE VERBAL MEAN	518	527	516	512	517	514	512	518	516
GRE QUANTITATIVE MEAN	485	488	488	491	494	492	491	498	499
GRE ANALYTICAL MEAN	529	526	533	522	530	529	534	541	542

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.7

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN APPLIED SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10851	11952	9831	8177	7214	7116	8154	8714	9280
% OF TOTAL EXAMINEES	6.79	6.96	6.74	6.35	6.13	5.99	6.10	6.17	6.23
% WHO ARE FEMALE	73.37	71.95	74.92	73.54	73.81	74.59	73.83	74.41	73.43
% WHO ARE BLACK	8.95	8.79	9.02	9.40	9.63	9.15	7.52	7.87	7.79
% WHO ARE HISPANIC	2.76	2.59	2.54	3.27	3.41	3.58	3.80	3.06	3.53
% WHO ARE ASIAN AMERICAN	1.13	1.19	1.22	1.16	1.10	1.41	1.24	1.58	1.86
% PURSUING DOCTORATE	14.39	15.33	15.24	15.09	14.51	15.51	14.78	15.25	15.83
% OLDER THAN 30	16.54	26.26	24.07	24.41	26.71	28.25	31.22	33.37	33.67
GRE VERBAL MEAN	501	509	499	492	497	496	499	500	497
GRE QUANTITATIVE MEAN	461	466	460	460	463	460	462	463	464
GRE ANALYTICAL MEAN	501	497	501	491	496	499	504	504	503

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2827	3283	2408	2092	1866	1780	2097	2203	2423
% OF TOTAL EXAMINEES	1.77	1.91	1.65	1.62	1.58	1.50	1.57	1.56	1.63
% WHO ARE BLACK	7.36	7.68	8.14	8.03	7.88	7.92	5.58	5.99	6.19
% WHO ARE HISPANIC	3.61	3.44	3.24	3.49	3.70	3.43	3.53	2.95	3.80
% WHO ARE ASIAN AMERICAN	1.27	0.91	1.20	1.24	1.07	1.07	1.24	1.50	2.06
% PURSUING DOCTORATE	19.24	22.05	22.67	21.03	20.74	21.29	20.51	20.47	21.05
% OLDER THAN 30	13.12	26.78	23.33	23.03	23.87	28.60	31.31	33.18	33.33
GRE VERBAL MEAN	513	515	511	507	515	513	513	513	512
GRE QUANTITATIVE MEAN	493	496	495	498	507	499	496	495	500
GRE ANALYTICAL MEAN	506	502	507	495	503	510	511	511	512

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7961	8599	7365	6013	5325	5308	6020	6484	6814
% OF TOTAL EXAMINEES	4.98	5.01	5.05	4.67	4.52	4.47	4.50	4.59	4.58
% WHO ARE BLACK	9.51	9.20	9.30	9.86	10.29	9.53	8.17	8.54	8.37
% WHO ARE HISPANIC	2.46	2.27	2.34	3.19	3.29	3.62	3.90	3.08	3.45
% WHO ARE ASIAN AMERICAN	1.08	1.28	1.22	1.13	1.09	1.53	1.25	1.62	1.81
% PURSUING DOCTORATE	12.64	12.76	12.83	13.04	12.26	13.56	12.76	13.51	14.04
% OLDER THAN 30	17.63	26.05	24.29	24.73	27.61	28.10	31.07	33.42	33.73
GRE VERBAL MEAN	497	507	495	487	490	490	494	496	491
GRE QUANTITATIVE MEAN	450	454	449	446	447	447	450	452	451
GRE ANALYTICAL MEAN	499	495	500	489	493	495	502	502	500

* DATA FOR 1979 NOT AVAILABLE

TABLE 2.8

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN HEALTH SCIENCES/SERVICE

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	16536	16515	15156	13737	12393	12027	13503	13582	14057
% OF TOTAL EXAMINEES	10.34	9.61	10.38	10.67	10.52	10.13	10.10	9.62	9.44
% WHO ARE FEMALE	75.71	71.95	77.84	78.10	78.60	79.57	79.42	79.83	79.98
% WHO ARE BLACK	4.74	4.90	4.80	4.49	4.83	4.45	4.38	4.28	4.25
% WHO ARE HISPANIC	1.90	1.70	1.79	2.00	2.28	2.53	2.32	2.33	2.34
% WHO ARE ASIAN AMERICAN	1.67	1.77	1.89	1.74	1.66	1.85	1.99	2.22	2.46
% PURSUING DOCTORATE	35.92	36.48	35.07	34.02	32.41	30.86	30.94	32.17	32.43
% OLDER THAN 30	14.01	21.27	19.61	22.53	24.93	26.60	28.28	30.39	31.76
GRE VERBAL MEAN	493	495	490	489	486	488	488	487	483
GRE QUANTITATIVE MEAN	509	514	511	512	514	510	511	513	509
GRE ANALYTICAL MEAN	521	513	523	518	524	524	530	531	528

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3922	4534	3265	2873	2602	2409	2724	2696	2761
% OF TOTAL EXAMINEES	2.45	2.64	2.24	2.23	2.21	2.03	2.04	1.91	1.85
% WHO ARE BLACK	3.49	3.75	3.43	3.48	3.46	3.20	3.23	3.60	2.83
% WHO ARE HISPANIC	3.14	2.18	2.60	3.38	3.50	4.03	4.19	4.04	3.66
% WHO ARE ASIAN AMERICAN	2.55	2.29	2.57	2.71	2.15	2.78	3.23	2.78	3.44
% PURSUING DOCTORATE	63.49	63.74	65.33	63.97	58.22	58.53	56.53	54.78	53.75
% OLDER THAN 30	7.08	13.58	11.58	14.65	16.06	17.30	18.36	20.04	19.91
GRE VERBAL MEAN	498	495	495	496	498	501	494	494	494
GRE QUANTITATIVE MEAN	569	572	577	576	583	575	570	573	570
GRE ANALYTICAL MEAN	535	527	540	533	540	549	550	551	547

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	12516	11883	11797	10724	9741	9570	10724	10843	11243
% OF TOTAL EXAMINEES	7.83	6.92	8.08	8.33	8.27	8.06	8.02	7.68	7.55
% WHO ARE BLACK	5.15	5.34	5.19	4.72	5.16	4.75	4.67	4.46	4.61
% WHO ARE HISPANIC	1.53	1.50	1.56	1.65	1.94	2.16	1.86	1.91	2.03
% WHO ARE ASIAN AMERICAN	1.38	1.57	1.69	1.45	1.54	1.63	1.69	2.08	2.22
% PURSUING DOCTORATE	27.19	26.01	26.71	26.04	25.51	23.92	24.43	26.56	27.24
% OLDER THAN 30	16.13	24.20	21.81	24.66	27.26	28.91	30.70	32.93	34.64
GRE VERBAL MEAN	492	495	488	487	483	485	487	485	481
GRE QUANTITATIVE MEAN	491	492	493	494	496	494	495	498	495
GRE ANALYTICAL MEAN	517	509	519	515	520	518	525	525	523

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* DATA FOR 1979 NOT AVAILABLE

TABLE 2.9

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN EDUCATION

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	35010	38425	30199	24588	22568	23181	26918	28163	30275
% OF TOTAL EXAMINEES	21.89	22.37	20.69	19.10	19.16	19.52	20.14	19.95	20.34
% WHO ARE FEMALE	72.60	70.75	73.48	73.01	74.71	74.71	75.81	74.91	75.06
% WHO ARE BLACK	8.34	9.18	7.56	8.40	7.36	6.55	6.86	6.44	6.25
% WHO ARE HISPANIC	3.10	3.21	3.29	4.03	3.66	3.51	3.79	3.17	3.36
% WHO ARE ASIAN AMERICAN	0.85	0.83	0.78	0.89	0.77	0.82	0.96	0.98	1.18
% PURSUING DOCTORATE	24.02	23.89	24.39	25.82	24.93	24.71	22.90	24.47	24.08
% OLDER THAN 30	28.49	40.61	38.14	41.11	39.90	40.89	43.21	45.56	45.89
GRE VERBAL MEAN	451	453	452	450	450	453	452	461	460
GRE QUANTITATIVE MEAN	449	450	449	449	455	454	453	462	462
GRE ANALYTICAL MEAN	466	461	469	465	473	479	481	487	488

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	9338	10989	7777	6332	5622	5745	6362	6952	7413
% OF TOTAL EXAMINEES	5.84	6.40	5.33	4.92	4.77	4.84	4.76	4.92	4.98
% WHO ARE BLACK	7.61	7.94	6.66	7.30	6.60	5.83	6.05	5.65	5.95
% WHO ARE HISPANIC	3.67	4.06	4.22	4.64	4.36	3.76	3.85	3.51	3.35
% WHO ARE ASIAN AMERICAN	0.77	0.75	0.66	0.84	0.82	0.91	1.12	1.12	1.25
% PURSUING DOCTORATE	36.58	37.24	37.24	38.00	36.98	36.47	34.55	36.38	35.71
% OLDER THAN 30	30.73	49.38	43.61	46.87	47.32	49.05	50.11	52.90	52.96
GRE VERBAL MEAN	450	452	452	452	453	459	458	465	466
GRE QUANTITATIVE MEAN	477	478	480	479	483	483	488	494	492
GRE ANALYTICAL MEAN	461	455	464	459	465	479	483	486	487

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	25415	27187	22191	17952	16861	17319	20407	21098	22723
% OF TOTAL EXAMINEES	15.89	15.83	15.21	13.94	14.32	14.59	15.27	14.94	15.27
% WHO ARE BLACK	8.60	9.67	7.90	8.78	7.64	6.81	7.11	6.71	6.35
% WHO ARE HISPANIC	2.87	2.87	2.97	3.84	3.43	3.44	3.77	3.06	3.36
% WHO ARE ASIAN AMERICAN	0.89	0.87	0.82	0.91	0.76	0.80	0.92	0.94	1.16
% PURSUING DOCTORATE	19.43	18.50	19.91	21.47	20.89	20.76	19.27	20.48	20.27
% OLDER THAN 30	27.61	36.93	36.12	38.98	37.37	38.08	41.00	43.10	43.49
GRE VERBAL MEAN	452	454	452	449	449	452	450	459	459
GRE QUANTITATIVE MEAN	439	440	439	438	445	444	442	452	453
GRE ANALYTICAL MEAN	468	463	470	468	476	479	480	487	488

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* DATA FOR 1979 NOT AVAILABLE

TABLE 2.10

TRENDS TABLE FOR U.S. CITIZENS INTENDING A MAJOR IN BUSINESS/PUBLIC ADMINISTRATION

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	14420	15405	12462	10007	8460	8118	8923	9177	9681
% OF TOTAL EXAMINEES	9.02	8.97	8.54	7.77	7.18	6.84	6.68	6.50	6.50
% WHO ARE FEMALE	47.88	41.13	51.45	51.65	52.13	53.67	54.47	56.26	56.52
% WHO ARE BLACK	12.20	12.15	12.37	12.36	12.81	12.03	11.64	11.34	13.20
% WHO ARE HISPANIC	3.04	2.86	3.15	4.18	3.88	4.46	4.38	4.05	4.82
% WHO ARE ASIAN AMERICAN	1.69	1.64	2.16	1.91	1.96	2.18	2.12	2.29	2.56
% PURSUING DOCTORATE	20.37	22.11	20.11	20.00	19.37	19.19	18.87	20.42	20.45
% OLDER THAN 30	15.46	25.91	22.97	24.65	25.97	28.26	29.98	31.25	33.10
GRE VERBAL MEAN	486	490	484	480	482	486	483	485	484
GRE QUANTITATIVE MEAN	506	512	506	501	503	503	499	503	500
GRE ANALYTICAL MEAN	506	504	509	501	505	513	512	518	515

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7421	8967	5968	4719	4017	3721	4027	3970	4160
% OF TOTAL EXAMINEES	4.64	5.22	4.09	3.67	3.41	3.13	3.01	2.81	2.79
% WHO ARE BLACK	9.51	9.26	9.32	9.24	9.88	9.54	8.94	9.02	10.87
% WHO ARE HISPANIC	3.53	2.93	3.65	4.77	4.31	5.16	4.59	4.94	5.43
% WHO ARE ASIAN AMERICAN	1.72	1.44	1.96	1.80	1.59	2.18	1.59	2.27	2.48
% PURSUING DOCTORATE	21.39	23.26	20.33	20.15	20.26	20.48	20.16	22.22	22.67
% OLDER THAN 30	16.18	27.93	25.15	26.49	28.41	31.16	31.21	32.17	35.23
GRE VERBAL MEAN	482	485	483	480	483	489	487	488	486
GRE QUANTITATIVE MEAN	530	531	531	527	528	528	527	530	526
GRE ANALYTICAL MEAN	506	505	509	498	502	519	517	522	518

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	6904	6336	6412	5168	4410	4357	4860	5163	5472
% OF TOTAL EXAMINEES	4.32	3.69	4.39	4.01	3.74	3.67	3.64	3.66	3.68
% WHO ARE BLACK	15.11	16.27	15.24	15.09	15.44	14.23	13.85	13.13	15.06
% WHO ARE HISPANIC	2.53	2.78	2.71	3.68	3.51	3.90	4.20	3.39	4.33
% WHO ARE ASIAN AMERICAN	1.64	1.93	2.35	2.05	2.31	2.18	2.55	2.32	2.65
% PURSUING DOCTORATE	19.31	20.45	19.82	19.74	18.59	18.18	17.84	19.06	18.79
% OLDER THAN 30	14.67	23.05	20.79	22.88	23.76	25.72	28.86	30.56	31.50
GRE VERBAL MEAN	491	497	485	481	481	484	479	484	482
GRE QUANTITATIVE MEAN	481	485	482	478	481	482	477	482	480
GRE ANALYTICAL MEAN	507	502	509	503	508	508	509	516	512

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* DATA FOR 1979 NOT AVAILABLE

TABLE 3.1

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN ARTS/HUMANITIES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	25676	28638	23228	20162	18003	18096	20584	22083	23611
% OF TOTAL EXAMINEES	16.06	16.67	15.92	15.66	15.29	15.24	15.40	15.64	15.86
% WHO ARE FEMALE	58.10	57.49	59.20	57.89	57.76	58.01	57.82	58.64	58.96
% WHO ARE BLACK	4.38	4.54	4.00	4.08	3.96	3.73	3.61	3.43	3.48
% WHO ARE HISPANIC	2.60	2.80	2.62	2.89	3.07	3.21	3.06	2.89	3.25
% WHO ARE ASIAN AMERICAN	1.19	1.06	1.17	1.26	1.27	1.45	1.60	1.50	1.63
% PURSUING DOCTORATE	36.21	37.53	35.82	37.02	38.69	39.60	38.27	40.91	41.92
% OLDER THAN 30	16.56	25.88	23.89	25.06	25.96	27.42	28.45	31.14	31.04
GRE VERBAL MEAN	542	547	537	534	541	543	541	548	548
GRE QUANTITATIVE MEAN	495	496	494	500	506	506	503	507	507
GRE ANALYTICAL MEAN	528	522	529	520	526	535	536	541	541

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10604	12034	9322	8288	7539	7531	8588	9044	9597
% OF TOTAL EXAMINEES	6.63	7.01	6.39	6.44	6.40	6.34	6.43	6.41	6.45
% WHO ARE BLACK	3.49	3.71	3.75	3.49	3.59	3.39	3.40	3.14	3.33
% WHO ARE HISPANIC	2.68	2.99	2.68	2.79	3.20	3.13	3.07	3.14	3.39
% WHO ARE ASIAN AMERICAN	1.14	0.81	0.94	1.19	1.14	1.37	1.51	1.34	1.37
% PURSUING DOCTORATE	42.80	44.76	41.53	41.83	43.04	42.68	42.50	46.03	46.50
% OLDER THAN 30	12.11	23.51	19.92	21.20	22.92	24.45	25.09	28.22	28.29
GRE VERBAL MEAN	542	545	536	534	539	543	540	547	547
GRE QUANTITATIVE MEAN	525	524	521	530	533	534	530	534	532
GRE ANALYTICAL MEAN	531	526	530	523	526	542	540	546	543

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	14887	16463	13752	11647	10398	10498	11902	12949	13920
% OF TOTAL EXAMINEES	9.31	9.58	9.42	9.05	8.83	8.84	8.91	9.17	9.35
% WHO ARE BLACK	5.02	5.13	4.16	4.49	4.23	3.95	3.78	3.64	3.58
% WHO ARE HISPANIC	2.53	2.66	2.58	3.01	2.97	3.27	3.08	2.73	3.17
% WHO ARE ASIAN AMERICAN	1.23	1.25	1.32	1.31	1.37	1.52	1.67	1.61	1.82
% PURSUING DOCTORATE	31.56	32.30	31.97	33.70	35.48	37.43	35.25	37.36	38.81
% OLDER THAN 30	19.59	27.55	26.49	27.58	28.02	29.48	30.79	33.20	32.87
GRE VERBAL MEAN	543	547	537	534	543	543	541	548	548
GRE QUANTITATIVE MEAN	475	476	476	478	486	485	483	489	490
GRE ANALYTICAL MEAN	526	519	528	518	527	531	533	538	539

*
DATA FOR 1979 NOT AVAILABLE

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TABLE 3.2

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN PHYSICAL SCIENCE/MATH

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	14196	15027	13561	12936	13709	13681	14976	15936	16032
% OF TOTAL EXAMINEES	8.88	8.75	9.29	10.05	11.64	11.52	11.21	11.29	10.77
% WHO ARE FEMALE	28.44	28.08	30.58	30.09	30.16	31.55	32.30	32.58	32.19
% WHO ARE BLACK	3.67	3.91	3.64	3.73	3.68	3.57	3.83	4.27	4.58
% WHO ARE HISPANIC	2.26	1.66	2.25	2.33	2.71	2.79	2.54	2.33	2.93
% WHO ARE ASIAN AMERICAN	2.29	2.09	2.68	2.68	2.91	3.00	3.66	4.26	4.45
% PURSUING DOCTORATE	48.05	51.17	47.23	46.44	45.56	46.51	46.94	47.29	48.77
% OLDER THAN 30	7.84	14.79	11.24	11.66	12.04	12.88	13.32	14.70	16.22
GRE VERBAL MEAN	529	533	531	527	531	533	527	528	529
GRE QUANTITATIVE MEAN	644	649	642	640	641	643	645	649	649
GRE ANALYTICAL MEAN	582	579	585	584	587	603	606	608	609

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10068	10734	9334	8924	9530	9309	10097	10689	10818
% OF TOTAL EXAMINEES	6.30	6.25	6.40	6.93	8.09	7.84	7.56	7.57	7.27
% WHO ARE BLACK	2.92	3.01	2.80	2.81	2.64	2.67	2.91	3.12	3.24
% WHO ARE HISPANIC	1.96	1.39	2.14	2.13	2.65	2.49	2.36	2.15	2.94
% WHO ARE ASIAN AMERICAN	2.05	1.96	2.38	2.49	2.57	2.64	3.44	3.75	4.10
% PURSUING DOCTORATE	51.05	55.18	50.77	48.91	48.57	49.47	49.85	50.39	51.80
% OLDER THAN 30	7.13	14.02	10.18	10.87	11.39	11.89	12.76	14.03	15.84
GRE VERBAL MEAN	531	535	534	529	534	537	531	534	535
GRE QUANTITATIVE MEAN	656	660	654	651	651	653	656	660	660
GRE ANALYTICAL MEAN	583	580	586	582	584	604	607	608	609

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	4036	4219	4147	3891	4134	4317	4837	5192	5160
% OF TOTAL EXAMINEES	2.52	2.46	2.84	3.02	3.51	3.64	3.62	3.68	3.47
% WHO ARE BLACK	5.50	6.16	5.57	5.89	6.07	5.44	5.69	6.57	7.34
% WHO ARE HISPANIC	3.05	2.35	2.51	2.78	2.78	3.47	2.92	2.73	2.87
% WHO ARE ASIAN AMERICAN	2.90	2.44	3.35	3.08	3.73	3.80	4.11	5.35	5.17
% PURSUING DOCTORATE	40.29	40.86	39.14	40.76	38.78	40.10	40.91	41.01	42.42
% OLDER THAN 30	9.43	16.46	13.47	13.27	13.51	14.96	14.40	16.05	16.91
GRE VERBAL MEAN	526	528	524	523	523	525	519	518	518
GRE QUANTITATIVE MEAN	617	621	616	616	618	622	622	627	627
GRE ANALYTICAL MEAN	581	576	582	590	593	601	604	606	608

*
DATA FOR 1979 NOT AVAILABLE

TABLE 3.3

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN ENGINEERING

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7595	7362	7577	7701	8792	9568	10834	12265	13095
% OF TOTAL EXAMINEES	4.75	4.29	5.19	5.98	7.46	8.06	8.11	8.69	8.80
% WHO ARE FEMALE	11.09	8.61	11.65	13.45	14.97	15.45	15.53	17.55	16.95
% WHO ARE BLACK	2.55	2.44	3.09	3.36	2.73	3.34	3.08	3.05	3.54
% WHO ARE HISPANIC	3.37	3.12	3.44	3.57	3.55	3.52	3.73	3.91	4.10
% WHO ARE ASIAN AMERICAN	5.33	4.62	5.46	6.80	5.70	6.68	7.06	7.88	8.94
% PURSUING DOCTORATE	27.53	28.89	28.40	28.98	28.78	29.99	29.54	28.91	28.84
% OLDER THAN 30	8.66	18.98	11.14	10.88	10.52	11.76	11.53	11.77	12.52
GRE VERBAL MEAN	517	518	516	514	527	525	518	520	517
GRE QUANTITATIVE MEAN	675	673	674	674	679	677	680	682	681
GRE ANALYTICAL MEAN	585	578	587	587	597	611	609	611	610

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	6712	6690	6642	6610	7455	8045	9108	10086	10814
% OF TOTAL EXAMINEES	4.20	3.89	4.55	5.13	6.33	6.78	6.82	7.14	7.27
% WHO ARE BLACK	2.22	2.18	2.89	3.10	2.41	2.88	2.60	2.54	2.88
% WHO ARE HISPANIC	3.44	3.18	3.52	3.69	3.62	3.43	3.65	3.82	4.01
% WHO ARE ASIAN AMERICAN	5.13	4.60	5.15	6.48	5.62	6.50	6.77	7.54	8.66
% PURSUING DOCTORATE	27.21	28.79	28.44	28.82	28.44	30.08	29.28	29.22	29.05
% OLDER THAN 30	9.34	19.85	12.03	11.97	11.58	12.99	12.71	12.77	13.54
GRE VERBAL MEAN	514	515	513	512	524	523	516	519	516
GRE QUANTITATIVE MEAN	675	676	675	675	680	679	682	686	684
GRE ANALYTICAL MEAN	582	577	584	581	590	607	605	607	606

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	842	634	883	1036	1316	1478	1683	2153	2220
% OF TOTAL EXAMINEES	0.53	0.37	0.61	0.80	1.12	1.24	1.26	1.53	1.49
% WHO ARE BLACK	5.34	5.36	4.76	5.21	4.48	5.75	5.53	5.34	6.80
% WHO ARE HISPANIC	2.85	2.52	2.94	2.70	3.19	3.92	4.16	4.37	4.55
% WHO ARE ASIAN AMERICAN	7.13	4.73	8.04	8.88	6.23	7.71	8.79	9.57	10.41
% PURSUING DOCTORATE	30.05	30.13	28.09	30.02	30.55	29.63	30.66	27.45	27.57
% OLDER THAN 30	3.11	9.12	4.47	3.80	4.44	5.05	5.04	7.16	7.30
GRE VERBAL MEAN	541	550	537	531	543	539	531	524	523
GRE QUANTITATIVE MEAN	670	644	666	664	671	667	670	666	667
GRE ANALYTICAL MEAN	611	595	611	626	631	634	632	629	629

* DATA FOR 1979 NOT AVAILABLE

TABLE 3.4

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN BIOLOGICAL SCIENCES

MALES AND FEMALES

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	16643	19112	14945	12875	10510	10336	11442	12214	12635
% OF TOTAL EXAMINEES	10.41	11.13	10.24	10.00	8.92	8.71	8.56	8.65	8.49
% WHO ARE FEMALE	47.20	41.91	49.21	51.12	50.80	52.27	52.08	53.22	54.71
% WHO ARE BLACK	4.55	4.55	4.73	4.89	5.02	5.07	4.80	4.57	4.77
% WHO ARE HISPANIC	2.86	2.68	2.91	3.56	3.82	4.29	3.67	4.28	4.16
% WHO ARE ASIAN AMERICAN	2.61	2.33	2.66	2.50	3.04	3.05	3.29	3.65	4.11
% PURSUING DOCTORATE	52.96	54.89	52.49	52.43	53.49	53.65	53.43	53.89	54.14
% OLDER THAN 30	6.32	11.45	9.64	11.05	12.29	13.62	14.35	15.32	16.47
GRE VERBAL MEAN	519	520	518	519	520	519	518	520	517
GRE QUANTITATIVE MEAN	566	568	569	570	576	571	573	575	572
GRE ANALYTICAL MEAN	554	545	555	552	559	564	570	572	569

MALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	8700	10966	7492	6162	5145	4900	5440	5669	5662
% OF TOTAL EXAMINEES	5.44	6.38	5.13	4.79	4.37	4.13	4.07	4.02	3.80
% WHO ARE BLACK	3.11	3.36	3.58	3.57	3.69	3.82	3.57	3.83	3.46
% WHO ARE HISPANIC	2.98	2.61	2.74	3.57	3.91	4.12	3.58	4.53	4.26
% WHO ARE ASIAN AMERICAN	2.59	2.36	2.52	2.45	2.90	3.02	3.29	3.77	4.15
% PURSUING DOCTORATE	57.23	58.75	57.62	57.11	57.38	59.14	58.82	58.49	59.55
% OLDER THAN 30	5.24	11.21	9.30	10.98	13.07	15.10	14.70	16.17	17.18
GRE VERBAL MEAN	515	512	515	516	517	519	515	518	518
GRE QUANTITATIVE MEAN	582	581	584	586	591	587	589	588	588
GRE ANALYTICAL MEAN	551	541	551	542	550	563	566	567	566

FEMALES ONLY

YEAR OF GRE[*]

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7887	8009	7354	6606	5339	5403	5959	6500	6913
% OF TOTAL EXAMINEES	4.93	4.66	5.04	5.13	4.53	4.55	4.46	4.60	4.64
% WHO ARE BLACK	6.12	6.14	5.92	6.10	6.29	6.20	5.87	5.25	5.89
% WHO ARE HISPANIC	2.71	2.81	3.09	3.54	3.75	4.46	3.76	4.08	4.06
% WHO ARE ASIAN AMERICAN	2.61	2.31	2.80	2.56	3.20	3.07	3.29	3.52	4.11
% PURSUING DOCTORATE	48.03	49.51	47.25	47.61	49.69	48.70	48.60	49.89	49.66
% OLDER THAN 30	7.41	11.80	9.93	11.02	11.48	12.29	13.97	14.56	15.87
GRE VERBAL MEAN	524	530	522	523	522	519	520	521	515
GRE QUANTITATIVE MEAN	548	549	553	555	562	556	560	563	558
GRE ANALYTICAL MEAN	558	550	558	561	568	565	574	577	573

[*] DATA FOR 1979 NOT AVAILABLE

TABLE 3.5

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN APPLIED BIOLOGICAL/ENVIRONMENTAL SCIENCE

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3184	3244	2928	2670	3052	2937	3160	3227	3048
% OF TOTAL EXAMINEES	1.99	1.89	2.01	2.07	2.59	2.47	2.36	2.29	2.05
% WHO ARE FEMALE	30.56	25.46	33.57	32.62	36.99	36.74	36.01	36.10	36.91
% WHO ARE BLACK	2.10	2.03	1.98	1.95	1.67	2.11	1.55	1.67	2.36
% WHO ARE HISPANIC	2.04	1.70	2.39	2.36	2.46	2.25	2.50	1.92	2.43
% WHO ARE ASIAN AMERICAN	0.75	1.05	0.68	0.94	0.98	0.92	1.01	1.18	1.05
% PURSUING DOCTORATE	36.06	35.45	36.44	34.53	31.75	34.05	32.78	33.41	34.25
% OLDER THAN 30	6.51	13.88	9.65	9.70	10.99	13.40	15.96	18.45	19.03
GRE VERBAL MEAN	480	478	478	482	488	494	489	488	491
GRE QUANTITATIVE MEAN	549	546	548	553	556	554	548	544	545
GRE ANALYTICAL MEAN	531	519	529	532	540	550	546	546	546

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2193	2398	1930	1772	1916	1849	2007	2044	1912
% OF TOTAL EXAMINEES	1.37	1.40	1.32	1.38	1.63	1.56	1.50	1.45	1.28
% WHO ARE BLACK	2.05	2.00	2.07	1.86	1.57	2.16	1.69	1.86	2.14
% WHO ARE HISPANIC	2.33	2.09	2.85	2.65	3.08	2.49	3.09	2.25	2.20
% WHO ARE ASIAN AMERICAN	0.64	0.92	0.73	0.68	0.73	0.70	0.75	1.13	0.73
% PURSUING DOCTORATE	35.70	34.57	35.28	34.48	32.78	36.02	33.58	33.07	34.05
% OLDER THAN 30	8.40	16.97	12.36	12.11	14.37	16.49	19.10	21.29	21.42
GRE VERBAL MEAN	468	468	468	471	477	488	478	480	484
GRE QUANTITATIVE MEAN	552	549	552	556	560	562	553	551	553
GRE ANALYTICAL MEAN	523	510	519	519	525	542	536	536	539

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	971	826	983	866	1129	1079	1138	1165	1125
% OF TOTAL EXAMINEES	0.61	0.48	0.67	0.67	0.96	0.91	0.85	0.83	0.76
% WHO ARE BLACK	2.06	2.06	1.73	2.08	1.86	2.04	1.23	1.29	2.76
% WHO ARE HISPANIC	1.44	0.61	1.53	1.73	1.42	1.85	1.41	1.37	2.84
% WHO ARE ASIAN AMERICAN	0.93	1.45	0.61	1.50	1.42	1.30	1.41	1.29	1.60
% PURSUING DOCTORATE	37.08	38.38	38.86	35.80	30.20	30.40	31.28	33.82	34.58
% OLDER THAN 30	2.28	4.52	4.10	4.88	5.35	8.22	10.18	13.20	14.88
GRE VERBAL MEAN	508	510	498	503	507	505	508	503	503
GRE QUANTITATIVE MEAN	544	540	540	545	550	540	539	533	533
GRE ANALYTICAL MEAN	552	547	550	558	565	563	566	563	560

* DATA FOR 1979 NOT AVAILABLE

TABLE 3.6

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	41789	46499	37764	32725	27420	27712	31005	33152	35814
% OF TOTAL EXAMINEES	26.13	27.07	25.88	25.42	23.28	23.34	23.20	23.48	24.06
% WHO ARE FEMALE	53.20	49.68	55.65	55.88	56.06	56.69	57.37	57.71	57.82
% WHO ARE BLACK	7.76	8.05	7.69	7.68	7.82	7.12	6.43	6.03	6.16
% WHO ARE HISPANIC	3.11	3.20	3.21	3.71	3.77	3.91	4.01	3.76	3.80
% WHO ARE ASIAN AMERICAN	1.31	1.33	1.54	1.67	1.66	1.71	1.80	1.87	1.87
% PURSUING DOCTORATE	48.16	48.65	48.95	50.54	50.46	51.70	50.77	51.43	52.60
% OLDER THAN 30	13.52	22.15	19.35	20.64	21.47	22.41	23.09	24.62	24.81
GRE VERBAL MEAN	513	518	511	508	513	515	512	517	516
GRE QUANTITATIVE MEAN	499	502	500	502	507	505	504	509	508
GRE ANALYTICAL MEAN	522	517	525	514	522	530	532	537	536

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	19304	23104	16533	14094	11944	11866	13097	13911	14956
% OF TOTAL EXAMINEES	12.07	13.45	11.33	10.95	10.14	9.99	9.80	9.85	10.05
% WHO ARE BLACK	6.21	6.63	6.08	6.24	6.34	5.44	5.23	4.82	5.25
% WHO ARE HISPANIC	3.45	3.38	3.39	3.83	3.94	4.26	3.89	4.03	3.73
% WHO ARE ASIAN AMERICAN	1.35	1.18	1.48	1.56	1.72	1.57	1.65	1.81	1.65
% PURSUING DOCTORATE	52.37	52.96	52.52	53.58	52.24	54.42	52.80	53.76	55.12
% OLDER THAN 30	12.42	23.43	19.52	20.51	21.78	23.33	23.59	25.90	25.70
GRE VERBAL MEAN	516	518	517	514	521	525	521	527	527
GRE QUANTITATIVE MEAN	523	522	527	528	534	532	531	535	533
GRE ANALYTICAL MEAN	523	516	528	514	522	537	537	540	539

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	22232	23100	21015	18287	15372	15710	17787	19133	20709
% OF TOTAL EXAMINEES	13.90	13.45	14.40	14.20	13.05	13.23	13.31	13.55	13.91
% WHO ARE BLACK	9.10	9.46	8.95	8.75	8.96	8.40	7.31	6.91	6.82
% WHO ARE HISPANIC	2.82	3.03	3.10	3.64	3.64	3.65	4.10	3.55	3.84
% WHO ARE ASIAN AMERICAN	1.28	1.49	1.60	1.76	1.62	1.82	1.92	1.92	2.03
% PURSUING DOCTORATE	44.54	44.35	46.16	48.29	49.10	49.61	49.29	49.73	50.78
% OLDER THAN 30	14.42	20.81	19.14	20.66	21.14	21.65	22.65	23.65	24.08
GRE VERBAL MEAN	510	519	506	503	507	508	506	510	509
GRE QUANTITATIVE MEAN	478	481	479	482	486	485	485	490	490
GRE ANALYTICAL MEAN	521	517	523	515	522	524	528	534	533

* DATA FOR 1979 NOT AVAILABLE

TABLE 3.7

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN APPLIED SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5980	5709	5732	5006	4424	4400	5068	5375	6039
% OF TOTAL EXAMINEES	3.74	3.32	3.93	3.89	3.76	3.71	3.79	3.81	4.06
% WHO ARE FEMALE	68.70	66.61	70.15	69.88	69.21	70.16	68.80	69.34	69.47
% WHO ARE BLACK	12.27	11.98	11.64	11.77	11.98	11.75	10.10	10.57	9.74
% WHO ARE HISPANIC	2.98	2.59	2.83	3.58	3.50	4.14	4.22	3.59	3.89
% WHO ARE ASIAN AMERICAN	1.02	1.12	1.12	0.98	0.90	1.23	1.30	1.02	1.51
% PURSUING DOCTORATE	18.80	20.53	19.02	20.40	20.41	20.91	20.30	22.72	21.36
% OLDER THAN 30	11.34	20.12	17.49	18.77	19.52	20.55	23.46	25.70	25.05
GRE VERBAL MEAN	472	478	471	469	470	467	472	474	473
GRE QUANTITATIVE MEAN	446	451	446	447	449	444	447	447	450
GRE ANALYTICAL MEAN	483	479	486	484	486	485	493	494	496

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1827	1867	1680	1461	1356	1297	1560	1627	1818
% OF TOTAL EXAMINEES	1.14	1.09	1.15	1.13	1.15	1.09	1.17	1.15	1.22
% WHO ARE BLACK	9.91	9.48	9.35	9.24	10.55	9.02	7.05	7.31	7.32
% WHO ARE HISPANIC	3.56	2.89	3.10	4.18	2.95	4.01	3.21	3.50	3.91
% WHO ARE ASIAN AMERICAN	1.15	0.54	1.37	0.96	0.96	1.62	1.15	0.61	1.43
% PURSUING DOCTORATE	23.70	26.46	25.12	26.42	26.33	25.44	26.09	27.47	26.51
% OLDER THAN 30	9.87	22.27	17.77	19.40	19.00	22.01	23.30	26.10	28.29
GRE VERBAL MEAN	485	493	486	486	491	488	491	490	492
GRE QUANTITATIVE MEAN	480	483	483	486	492	484	484	482	486
GRE ANALYTICAL MEAN	491	490	498	489	500	503	507	505	508

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	4108	3803	4021	3498	3062	3087	3487	3727	4195
% OF TOTAL EXAMINEES	2.57	2.21	2.76	2.72	2.60	2.60	2.61	2.64	2.82
% WHO ARE BLACK	13.34	13.20	12.66	12.78	12.64	12.93	11.44	12.02	10.77
% WHO ARE HISPANIC	2.70	2.45	2.74	3.29	3.76	4.18	4.67	3.65	3.89
% WHO ARE ASIAN AMERICAN	0.97	1.39	1.02	1.00	0.88	1.07	1.38	1.21	1.55
% PURSUING DOCTORATE	16.58	17.57	16.56	17.95	17.83	19.02	17.67	20.55	19.14
% OLDER THAN 30	11.85	19.00	17.33	18.48	19.69	19.84	23.46	25.45	23.60
GRE VERBAL MEAN	467	471	465	462	461	459	463	467	465
GRE QUANTITATIVE MEAN	431	435	430	431	430	427	430	432	435
GRE ANALYTICAL MEAN	479	473	481	482	480	478	487	488	491

* DATA FOR 1979 NOT AVAILABLE

TABLE 3.8

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN HEALTH SCIENCES/SERVICE

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	13434	12722	12595	11416	10069	9836	11216	11462	11800
% OF TOTAL EXAMINEES	8.40	7.41	8.63	8.87	8.55	8.28	8.39	8.12	7.93
% WHO ARE FEMALE	87.09	85.97	88.03	87.44	88.22	89.38	88.92	88.81	88.66
% WHO ARE BLACK	5.54	5.48	5.01	4.94	4.85	4.69	4.96	4.57	4.75
% WHO ARE HISPANIC	1.40	1.32	1.56	1.66	1.65	2.16	1.80	1.68	1.97
% WHO ARE ASIAN AMERICAN	1.31	1.52	1.57	1.49	1.29	1.58	1.35	1.61	1.97
% PURSUING DOCTORATE	24.49	24.63	24.61	24.79	24.31	22.68	22.87	25.00	25.08
% OLDER THAN 30	21.76	32.15	29.18	31.97	35.73	37.57	39.63	43.53	45.38
GRE VERBAL MEAN	484	486	483	482	480	481	484	482	478
GRE QUANTITATIVE MEAN	480	482	484	486	487	484	484	484	480
GRE ANALYTICAL MEAN	505	496	509	502	508	506	512	510	508

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1655	1712	1423	1326	1147	1000	1201	1239	1291
% OF TOTAL EXAMINEES	1.03	1.00	0.98	1.03	0.97	0.84	0.90	0.88	0.87
% WHO ARE BLACK	4.29	3.33	2.60	3.47	2.79	2.90	3.08	3.63	3.02
% WHO ARE HISPANIC	3.08	1.52	2.25	3.39	3.31	3.50	4.00	3.07	3.02
% WHO ARE ASIAN AMERICAN	2.05	2.75	2.11	2.56	2.01	1.90	2.08	1.45	3.95
% PURSUING DOCTORATE	48.28	52.22	51.09	49.62	46.12	45.20	43.30	44.47	44.93
% OLDER THAN 30	14.37	23.69	23.08	24.20	26.87	29.61	32.18	36.64	35.15
GRE VERBAL MEAN	490	488	493	493	494	495	496	491	490
GRE QUANTITATIVE MEAN	544	550	555	556	560	550	552	546	541
GRE ANALYTICAL MEAN	518	514	528	519	523	532	535	528	527

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	11700	10937	11088	9982	8883	8791	9973	10179	10462
% OF TOTAL EXAMINEES	7.32	6.37	7.60	7.75	7.54	7.40	7.46	7.21	7.03
% WHO ARE BLACK	5.72	5.80	5.33	5.09	5.09	4.90	5.19	4.71	4.97
% WHO ARE HISPANIC	1.17	1.29	1.47	1.43	1.44	2.01	1.54	1.51	1.34
% WHO ARE ASIAN AMERICAN	1.20	1.33	1.50	1.33	1.19	1.55	1.26	1.64	1.72
% PURSUING DOCTORATE	21.09	20.27	21.22	21.50	21.47	20.16	20.40	22.67	22.70
% OLDER THAN 30	22.74	33.38	29.92	33.06	36.88	38.43	40.45	44.36	46.58
GRE VERBAL MEAN	483	486	481	480	478	480	482	481	476
GRE QUANTITATIVE MEAN	472	472	475	477	478	476	476	477	472
GRE ANALYTICAL MEAN	503	494	507	499	506	503	509	508	506

*
DATA FOR 1979 NOT AVAILABLE

TABLE 3.9

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN EDUCATION

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	25229	26783	21795	18171	17183	17762	20438	20336	20935
% OF TOTAL EXAMINEES	15.78	15.59	14.93	14.11	14.59	14.96	15.29	14.40	14.07
% WHO ARE FEMALE	76.02	74.88	76.70	76.58	78.63	78.14	79.02	78.77	78.68
% WHO ARE BLACK	8.28	9.39	7.49	8.01	7.11	6.31	6.30	6.06	5.87
% WHO ARE HISPANIC	2.92	2.76	3.19	3.79	3.46	3.38	3.75	3.15	3.23
% WHO ARE ASIAN AMERICAN	0.73	0.57	0.65	0.64	0.68	0.74	0.74	0.92	1.06
% PURSUING DOCTORATE	20.54	20.40	20.71	22.31	20.72	21.65	19.84	21.42	21.09
% OLDER THAN 30	25.10	36.45	34.01	36.69	35.19	36.99	40.26	42.92	44.15
GRE VERBAL MEAN	436	438	439	437	438	441	439	445	443
GRE QUANTITATIVE MEAN	440	439	442	442	448	445	443	450	450
GRE ANALYTICAL MEAN	458	452	461	462	470	473	474	478	478

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5869	6549	4920	4044	3611	3795	4177	4238	4366
% OF TOTAL EXAMINEES	3.67	3.81	3.37	3.14	3.07	3.20	3.13	3.00	2.93
% WHO ARE BLACK	7.33	8.35	6.40	6.73	6.45	5.72	5.36	5.47	5.63
% WHO ARE HISPANIC	3.49	3.57	4.37	4.40	4.10	3.82	3.90	3.33	3.21
% WHO ARE ASIAN AMERICAN	0.58	0.44	0.51	0.62	0.66	0.74	0.79	0.83	1.42
% PURSUING DOCTORATE	31.98	32.88	31.42	33.26	31.13	32.46	30.50	32.96	32.00
% OLDER THAN 30	24.36	42.71	36.01	39.26	39.26	42.37	44.48	48.49	48.90
GRE VERBAL MEAN	431	431	433	435	436	441	439	444	442
GRE QUANTITATIVE MEAN	465	464	467	470	474	470	473	477	477
GRE ANALYTICAL MEAN	450	443	451	454	460	471	473	473	474

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	19178	20056	16716	13914	13511	13879	16150	16019	16472
% OF TOTAL EXAMINEES	11.99	11.68	11.45	10.81	11.47	11.69	12.09	11.35	11.07
% WHO ARE BLACK	8.59	9.71	7.81	8.39	7.28	6.47	6.54	6.23	5.94
% WHO ARE HISPANIC	2.72	2.49	2.85	3.62	3.29	3.28	3.70	3.11	3.25
% WHO ARE ASIAN AMERICAN	0.79	0.62	0.67	0.66	0.68	0.74	0.74	0.96	0.97
% PURSUING DOCTORATE	17.05	16.34	17.60	19.12	17.93	18.68	17.08	18.33	18.20
% OLDER THAN 30	25.31	34.27	33.34	35.82	34.04	35.39	39.09	41.40	42.81
GRE VERBAL MEAN	438	440	440	438	439	440	439	446	444
GRE QUANTITATIVE MEAN	433	432	434	434	441	438	436	443	443
GRE ANALYTICAL MEAN	461	456	464	464	472	473	475	479	479

*
DATA FOR 1979 NOT AVAILABLE

TABLE 3.10

TRENDS TABLE FOR U.S. CITIZENS WITH UNDERGRADUATE MAJOR IN BUSINESS/PUBLIC ADMINISTRATION

MALES AND FEMALES

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	6181	6684	5819	5078	4615	4399	4913	5129	5832
% OF TOTAL EXAMINEES	3.87	3.89	3.99	3.94	3.92	3.71	3.68	3.63	3.92
% WHO ARE FEMALE	37.60	32.72	40.76	40.84	43.62	44.12	47.26	48.41	49.11
% WHO ARE BLACK	12.15	12.25	12.08	11.95	12.70	10.96	10.65	11.02	11.45
% WHO ARE HISPANIC	2.94	3.07	2.56	3.76	3.27	4.43	3.85	3.43	3.89
% WHO ARE ASIAN AMERICAN	1.49	1.23	1.31	1.50	1.45	1.70	1.51	1.31	1.85
% PURSUING DOCTORATE	21.02	22.13	21.33	20.70	21.32	23.32	22.06	24.49	23.34
% OLDER THAN 30	20.66	33.89	28.18	29.09	29.42	32.97	32.10	34.41	34.47
GRE VERBAL MEAN	456	456	458	457	457	466	460	466	464
GRE QUANTITATIVE MEAN	499	501	501	501	498	499	496	498	496
GRE ANALYTICAL MEAN	489	481	492	489	494	503	504	508	506

MALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3810	4466	3414	2954	2579	2436	2571	2628	2940
% OF TOTAL EXAMINEES	2.38	2.60	2.34	2.29	2.19	2.05	1.92	1.86	1.98
% WHO ARE BLACK	8.69	8.71	9.31	8.50	8.76	8.21	7.93	8.07	8.61
% WHO ARE HISPANIC	2.94	3.05	3.02	3.76	3.61	4.23	3.97	3.42	4.08
% WHO ARE ASIAN AMERICAN	1.31	0.96	1.14	1.39	1.43	1.68	1.32	1.22	1.84
% PURSUING DOCTORATE	23.12	24.03	23.37	22.61	23.30	25.90	25.17	28.12	26.80
% OLDER THAN 30	21.85	36.03	30.69	31.88	32.45	36.20	34.59	38.46	37.23
GRE VERBAL MEAN	459	460	462	461	464	474	468	471	471
GRE QUANTITATIVE MEAN	521	520	523	523	521	520	523	522	521
GRE ANALYTICAL MEAN	494	489	497	488	495	507	512	512	511

FEMALES ONLY

YEAR OF GRE*

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2324	2187	2372	2074	2013	1941	2322	2483	2864
% OF TOTAL EXAMINEES	1.45	1.27	1.63	1.61	1.71	1.63	1.74	1.76	1.92
% WHO ARE BLACK	17.90	19.66	15.98	16.83	17.69	14.32	13.57	14.18	14.49
% WHO ARE HISPANIC	2.97	3.16	1.94	3.86	2.83	4.69	3.70	3.42	3.67
% WHO ARE ASIAN AMERICAN	1.68	1.78	1.52	1.69	1.49	1.75	1.72	1.41	1.89
% PURSUING DOCTORATE	17.51	18.06	18.30	18.03	18.73	19.94	18.60	20.66	19.83
% OLDER THAN 30	18.62	29.36	24.48	24.89	25.48	28.76	29.30	30.12	31.56
GRE VERBAL MEAN	451	448	453	451	449	457	451	462	456
GRE QUANTITATIVE MEAN	463	462	470	471	468	472	466	472	471
GRE ANALYTICAL MEAN	480	467	486	493	493	499	496	504	502

*
DATA FOR 1979 NOT AVAILABLE

TABLE 4.1

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: ARTS/HUMANITIES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	16186	18222	14668	13009	11651	11726	13544	14373	15322
% OF TOTAL EXAMINEES **	63.04	63.63	63.15	64.52	64.72	64.80	65.80	65.09	64.89
% WHO ARE FEMALE	51.53	51.37	52.73	52.57	52.91	52.67	52.89	53.73	53.97
% WHO ARE BLACK	3.39	3.83	3.31	3.24	3.13	3.00	3.09	2.65	2.96
% WHO ARE HISPANIC	2.28	2.39	2.40	2.71	2.82	3.15	2.78	2.98	3.22
% WHO ARE ASIAN AMERICAN	1.28	1.11	1.19	1.33	1.38	1.52	1.67	1.60	1.79
% PURSUING DOCTORATE	39.51	42.14	38.89	39.25	41.84	43.05	41.80	44.83	46.66
% OLDER THAN 30	10.10	17.18	15.56	16.62	17.50	19.05	20.39	22.37	22.38
GRE VERBAL MEAN	542	547	535	531	541	541	540	547	548
GRE QUANTITATIVE MEAN	502	503	499	505	510	510	508	511	512
GRE ANALYTICAL MEAN	533	527	531	527	533	541	542	547	547

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7750	8777	6853	6048	5450	5505	6330	6588	6989
% OF TOTAL EXAMINEES **	73.09	72.94	73.51	72.97	72.29	73.10	73.71	72.84	72.82
% WHO ARE BLACK	2.89	3.37	3.49	3.03	3.28	2.91	3.08	2.57	2.90
% WHO ARE HISPANIC	2.34	2.47	2.29	2.45	2.92	3.05	2.73	3.20	3.16
% WHO ARE ASIAN AMERICAN	1.14	0.82	0.96	1.19	1.17	1.45	1.44	1.41	1.45
% PURSUING DOCTORATE	43.55	46.05	41.92	42.13	43.28	43.42	43.32	47.34	48.18
% OLDER THAN 30	7.65	16.27	13.89	14.26	15.98	17.84	18.57	20.85	20.90
GRE VERBAL MEAN	540	545	532	529	536	539	537	544	546
GRE QUANTITATIVE MEAN	527	527	521	530	533	535	532	533	534
GRE ANALYTICAL MEAN	534	530	531	527	531	545	545	549	549

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	8321	9361	7735	6819	6165	6176	7164	7723	8270
% OF TOTAL EXAMINEES **	55.89	56.86	56.25	58.55	59.29	58.83	60.19	59.64	59.41
% WHO ARE BLACK	3.88	4.24	3.15	3.43	2.98	3.06	3.10	2.72	3.01
% WHO ARE HISPANIC	2.21	2.33	2.48	2.98	2.74	3.25	2.83	2.81	3.30
% WHO ARE ASIAN AMERICAN	1.41	1.39	1.38	1.45	1.57	1.59	1.88	1.76	2.08
% PURSUING DOCTORATE	35.85	38.53	36.28	36.97	40.50	42.78	40.49	42.76	45.45
% OLDER THAN 30	12.28	17.98	17.03	18.55	18.72	20.03	21.93	23.65	23.50
GRE VERBAL MEAN	543	550	537	533	545	543	542	549	550
GRE QUANTITATIVE MEAN	479	481	480	482	490	489	487	491	493
GRE ANALYTICAL MEAN	531	525	532	526	535	538	540	544	547

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.2

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: PHYSICAL SCIENCE/MATH

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10437	10497	10065	10043	10842	10730	11588	12132	11894
% OF TOTAL EXAMINEES **	73.52	69.85	74.22	77.64	79.09	78.43	77.38	76.13	74.19
% WHO ARE FEMALE	25.94	24.60	28.71	28.73	28.24	29.41	30.14	30.00	28.98
% WHO ARE BLACK	3.03	3.12	3.09	3.23	3.21	3.18	3.24	3.75	3.99
% WHO ARE HISPANIC	2.20	1.43	2.15	2.24	2.64	2.73	2.58	2.37	2.94
% WHO ARE ASIAN AMERICAN	2.14	2.05	2.52	2.54	2.82	2.93	3.64	4.24	4.45
% PURSUING DOCTORATE	49.74	53.67	48.03	46.56	45.70	47.44	47.95	48.85	51.49
% OLDER THAN 30	4.25	9.33	7.34	8.38	9.10	9.65	10.25	11.47	12.09
GRE VERBAL MEAN	530	537	533	528	531	534	528	528	530
GRE QUANTITATIVE MEAN	648	658	645	642	642	645	648	652	654
GRE ANALYTICAL MEAN	586	586	588	588	590	607	610	612	615

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	7667	7865	7116	7078	7744	7529	8062	8448	8407
% OF TOTAL EXAMINEES **	76.15	73.27	76.24	79.31	81.26	80.88	79.85	79.03	77.71
% WHO ARE BLACK	2.47	2.36	2.35	2.22	2.22	2.43	2.53	2.60	2.76
% WHO ARE HISPANIC	1.87	1.17	2.01	2.06	2.60	2.42	2.34	2.21	2.87
% WHO ARE ASIAN AMERICAN	1.88	1.84	2.23	2.36	2.52	2.58	3.35	3.59	3.97
% PURSUING DOCTORATE	53.01	57.19	51.66	49.36	48.59	50.44	51.10	52.18	54.24
% OLDER THAN 30	4.05	9.43	6.91	7.93	8.92	9.14	9.79	11.18	12.34
GRE VERBAL MEAN	532	539	537	531	535	538	532	535	536
GRE QUANTITATIVE MEAN	658	667	656	653	652	655	658	662	664
GRE ANALYTICAL MEAN	586	586	589	586	587	608	611	613	616

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2707	2582	2890	2885	3062	3156	3493	3639	3447
% OF TOTAL EXAMINEES **	67.07	61.20	69.69	74.15	74.07	73.11	72.21	70.09	66.80
% WHO ARE BLACK	4.62	5.38	4.98	5.79	5.72	4.91	4.81	6.38	6.88
% WHO ARE HISPANIC	3.21	2.25	2.49	2.63	2.68	3.52	3.12	2.75	3.08
% WHO ARE ASIAN AMERICAN	2.88	2.67	3.22	2.95	3.63	3.80	4.29	5.83	5.57
% PURSUING DOCTORATE	40.08	42.87	38.89	39.58	38.57	40.18	40.74	41.30	44.79
% OLDER THAN 30	4.77	8.74	8.36	9.29	9.50	10.86	11.32	12.12	11.42
GRE VERBAL MEAN	526	530	524	522	523	525	519	514	516
GRE QUANTITATIVE MEAN	621	629	617	617	619	622	625	629	632
GRE ANALYTICAL MEAN	587	585	584	595	597	604	608	609	615

*
DATA FOR 1979 NOT AVAILABLE

**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.3

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: ENGINEERING

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	6021	5661	6114	6385	7217	7852	8899	10084	10652
% OF TOTAL EXAMINEES **	79.28	76.89	80.69	82.91	82.09	82.07	82.14	82.22	81.34
% WHO ARE FEMALE	11.38	8.18	11.79	13.67	15.19	15.13	15.38	16.63	16.44
% WHO ARE BLACK	2.42	2.33	3.19	3.30	2.65	3.44	2.90	2.80	3.55
% WHO ARE HISPANIC	3.60	3.44	3.45	3.65	3.64	3.55	3.87	4.07	4.20
% WHO ARE ASIAN AMERICAN	5.65	5.19	5.64	7.11	6.15	6.99	7.24	8.31	9.45
% PURSUING DOCTORATE	26.86	28.23	28.00	28.58	28.85	29.89	29.16	28.24	28.36
% OLDER THAN 30	4.63	12.06	7.09	7.33	7.46	8.90	8.33	9.09	9.54
GRE VERBAL MEAN	515	516	514	513	525	522	516	517	513
GRE QUANTITATIVE MEAN	680	682	679	679	683	680	684	687	684
GRE ANALYTICAL MEAN	588	582	589	591	600	613	612	613	611

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5304	5170	5351	5471	6105	6626	7498	8387	8859
% OF TOTAL EXAMINEES **	79.02	77.28	80.56	82.77	81.89	82.36	82.32	83.15	81.92
% WHO ARE BLACK	2.11	2.15	3.06	3.03	2.36	2.99	2.41	2.36	2.90
% WHO ARE HISPANIC	3.70	3.48	3.61	3.75	3.72	3.44	3.77	3.86	4.13
% WHO ARE ASIAN AMERICAN	5.37	5.15	5.29	6.82	6.01	6.85	7.03	7.99	9.20
% PURSUING DOCTORATE	26.49	28.05	27.96	28.55	28.40	29.97	28.90	28.48	28.49
% OLDER THAN 30	5.03	12.79	7.80	8.14	8.23	9.72	9.13	9.90	10.34
GRE VERBAL MEAN	512	512	511	510	521	519	513	516	511
GRE QUANTITATIVE MEAN	681	682	679	680	684	682	685	689	686
GRE ANALYTICAL MEAN	585	579	586	584	594	609	608	609	607

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	685	463	721	873	1096	1188	1369	1677	1751
% OF TOTAL EXAMINEES **	81.35	73.03	81.65	84.27	83.28	80.38	81.34	77.89	78.87
% WHO ARE BLACK	4.96	4.54	4.30	5.15	4.20	5.89	5.41	4.95	6.85
% WHO ARE HISPANIC	2.92	3.02	2.36	2.86	3.28	4.04	4.31	5.13	4.63
% WHO ARE ASIAN AMERICAN	7.88	5.62	8.46	8.93	7.03	7.83	8.55	9.96	10.85
% PURSUING DOCTORATE	29.78	30.45	28.16	28.64	31.11	29.80	30.17	27.01	27.41
% OLDER THAN 30	1.47	3.06	1.82	2.43	3.31	4.24	3.83	5.09	5.50
GRE VERBAL MEAN	540	561	539	532	543	539	530	522	521
GRE QUANTITATIVE MEAN	676	679	673	671	676	671	676	676	672
GRE ANALYTICAL MEAN	612	613	617	631	634	637	635	634	633

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.4

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: BIOLOGICAL SCIENCES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	9329	11352	8351	7360	5536	5320	5868	6063	6304
% OF TOTAL EXAMINEES **	56.05	59.40	55.88	57.17	52.67	51.47	51.28	49.64	49.89
% WHO ARE FEMALE	45.30	40.28	46.82	48.91	47.72	50.75	48.94	49.69	50.10
% WHO ARE BLACK	3.64	3.49	3.74	4.13	4.06	4.34	4.35	3.89	3.71
% WHO ARE HISPANIC	2.80	2.61	3.14	3.85	3.92	4.91	3.83	4.67	4.71
% WHO ARE ASIAN AMERICAN	2.32	2.07	2.36	2.26	2.80	3.12	3.20	3.89	4.12
% PURSUING DOCTORATE	55.80	58.02	55.79	55.76	58.91	58.83	59.68	62.33	61.50
% OLDER THAN 30	3.97	8.20	6.18	7.04	7.43	8.89	8.56	9.26	10.25
GRE VERBAL MEAN	522	524	521	520	521	518	519	522	518
GRE QUANTITATIVE MEAN	571	574	572	572	581	574	581	580	578
GRE ANALYTICAL MEAN	560	552	558	556	566	569	577	578	577

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	5052	6706	4397	3677	2880	2604	2977	3029	3119
% OF TOTAL EXAMINEES **	58.07	61.15	58.69	59.67	55.98	53.14	54.72	53.43	55.09
% WHO ARE BLACK	2.67	2.46	2.84	3.05	3.19	3.23	3.19	3.33	2.85
% WHO ARE HISPANIC	2.69	2.48	2.84	3.64	3.75	4.26	3.53	4.42	4.55
% WHO ARE ASIAN AMERICAN	2.10	2.15	2.30	2.20	2.64	2.88	3.39	4.03	4.07
% PURSUING DOCTORATE	59.68	61.11	60.63	60.81	61.94	63.63	63.69	65.60	65.37
% OLDER THAN 30	3.10	7.92	5.50	6.54	7.37	9.21	7.70	9.41	9.92
GRE VERBAL MEAN	518	518	520	518	519	519	517	521	520
GRE QUANTITATIVE MEAN	587	587	588	589	594	590	596	592	594
GRE ANALYTICAL MEAN	557	548	556	547	556	569	572	573	575

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	4220	4573	3910	3578	2642	2700	2872	3013	3158
% OF TOTAL EXAMINEES **	53.51	57.10	53.17	54.16	49.48	49.97	48.20	46.35	45.68
% WHO ARE BLACK	4.81	4.94	4.76	5.03	5.03	5.44	5.50	4.48	4.59
% WHO ARE HISPANIC	2.87	2.84	3.48	4.00	4.13	5.56	4.18	4.95	4.88
% WHO ARE ASIAN AMERICAN	2.54	1.99	2.40	2.32	2.99	3.37	3.03	3.72	4.21
% PURSUING DOCTORATE	51.18	53.29	50.41	51.62	55.49	54.19	55.57	58.98	57.50
% OLDER THAN 30	4.91	8.57	6.87	7.53	7.38	8.58	9.40	9.19	10.61
GRE VERBAL MEAN	526	534	522	523	523	518	521	522	516
GRE QUANTITATIVE MEAN	552	555	555	555	567	559	565	569	563
GRE ANALYTICAL MEAN	564	557	561	565	576	568	581	583	578

* DATA FOR 1979 NOT AVAILABLE

** IN THAT UNDERGRADUATE MAJOR

TABLE 4.5

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: APPLIED BIOLOGICAL/ENVIRONMENTAL SCIENCE

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1944	1999	1792	1629	1824	1763	1856	1915	1751
% OF TOTAL EXAMINEES **	61.06	61.62	61.20	61.01	59.76	60.03	58.73	59.34	57.45
% WHO ARE FEMALE	28.09	22.96	30.52	28.30	33.77	33.92	32.49	30.81	32.10
% WHO ARE BLACK	1.65	1.75	1.79	1.90	1.59	2.21	1.45	1.62	2.34
% WHO ARE HISPANIC	2.11	2.00	2.73	2.33	2.74	2.33	2.86	1.93	2.28
% WHO ARE ASIAN AMERICAN	0.62	1.05	0.84	0.80	0.82	0.74	0.75	1.10	0.86
% PURSUING DOCTORATE	27.31	27.56	28.01	25.84	25.99	30.01	29.96	29.14	29.75
% OLDER THAN 30	4.97	12.60	7.84	7.96	8.57	10.00	11.71	14.50	13.24
GRE VERBAL MEAN	480	474	476	478	485	491	482	480	482
GRE QUANTITATIVE MEAN	548	544	545	551	554	554	546	543	546
GRE ANALYTICAL MEAN	532	515	525	530	539	549	545	544	546

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1385	1526	1232	1147	1204	1160	1246	1317	1186
% OF TOTAL EXAMINEES **	63.16	63.64	63.83	64.73	62.84	62.74	62.08	64.43	62.03
% WHO ARE BLACK	1.66	2.03	2.19	2.01	1.41	2.33	1.61	2.20	2.02
% WHO ARE HISPANIC	2.38	2.49	3.00	2.27	3.32	2.67	3.37	2.13	1.94
% WHO ARE ASIAN AMERICAN	0.36	0.98	0.81	0.61	0.50	0.60	0.56	0.99	0.67
% PURSUING DOCTORATE	28.30	28.57	27.68	27.03	27.82	32.50	31.22	29.99	30.44
% OLDER THAN 30	6.03	15.32	9.70	9.71	11.25	11.37	13.82	17.24	14.43
GRE VERBAL MEAN	468	465	466	468	475	486	473	472	476
GRE QUANTITATIVE MEAN	551	547	549	553	558	562	552	548	552
GRE ANALYTICAL MEAN	524	508	515	518	528	543	536	533	539

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	546	459	547	460	616	598	603	590	562
% OF TOTAL EXAMINEES **	56.23	55.57	55.65	53.12	54.56	55.42	52.99	50.64	49.96
% WHO ARE BLACK	1.28	0.87	0.91	1.52	1.95	2.01	1.16	0.34	3.02
% WHO ARE HISPANIC	1.47	0.44	2.19	2.39	1.62	1.67	1.82	1.53	3.02
% WHO ARE ASIAN AMERICAN	1.10	1.31	0.91	1.30	1.46	1.00	1.00	1.36	1.25
% PURSUING DOCTORATE	24.91	24.62	28.88	23.48	22.56	25.08	27.20	27.29	28.29
% OLDER THAN 30	2.22	3.30	3.14	3.52	3.43	7.42	7.49	8.49	10.63
GRE VERBAL MEAN	511	504	497	503	503	501	502	499	496
GRE QUANTITATIVE MEAN	540	534	537	547	546	538	534	533	533
GRE ANALYTICAL MEAN	554	542	548	561	563	560	566	567	559

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.6

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	24125	26707	22349	19998	16763	17342	19284	20365	22310
% OF TOTAL EXAMINEES **	57.73	57.44	59.18	61.11	61.13	62.58	62.20	61.43	62.29
% WHO ARE FEMALE	50.87	46.88	53.44	54.85	54.83	55.22	55.82	55.89	55.87
% WHO ARE BLACK	7.22	7.25	6.93	7.00	7.16	6.34	5.67	5.17	5.20
% WHO ARE HISPANIC	3.16	3.40	3.35	3.80	3.78	4.12	4.01	3.86	3.80
% WHO ARE ASIAN AMERICAN	1.21	1.24	1.51	1.63	1.71	1.75	1.79	1.90	1.87
% PURSUING DOCTORATE	62.96	63.13	62.76	64.12	64.13	65.44	64.04	65.38	65.95
% OLDER THAN 30	10.08	17.41	14.48	15.50	16.03	16.63	16.84	18.10	18.28
GRE VERBAL MEAN	519	525	517	512	519	519	516	522	521
GRE QUANTITATIVE MEAN	508	511	509	510	516	514	513	519	517
GRE ANALYTICAL MEAN	532	526	535	522	531	538	541	546	545

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	11712	14022	10285	8858	7518	7683	8449	8928	9751
% OF TOTAL EXAMINEES **	60.67	60.69	62.21	62.85	62.94	64.75	64.51	64.18	65.20
% WHO ARE BLACK	5.25	5.83	5.63	5.77	5.71	4.52	4.45	4.19	4.37
% WHO ARE HISPANIC	3.44	3.52	3.34	3.89	3.94	4.49	3.88	4.16	3.80
% WHO ARE ASIAN AMERICAN	1.26	1.21	1.55	1.54	1.88	1.57	1.67	1.83	1.76
% PURSUING DOCTORATE	64.65	64.42	63.55	64.56	63.00	65.52	62.79	64.64	65.11
% OLDER THAN 30	8.46	17.95	13.74	14.60	15.57	16.47	16.78	18.64	18.39
GRE VERBAL MEAN	523	525	523	517	526	530	525	533	532
GRE QUANTITATIVE MEAN	532	530	535	534	543	540	540	544	542
GRE ANALYTICAL MEAN	534	526	537	521	531	545	546	550	549

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	12272	12520	11943	10969	9191	9576	10765	11381	12465
% OF TOTAL EXAMINEES **	55.20	54.20	56.83	59.98	59.79	60.95	60.52	59.48	60.19
% WHO ARE BLACK	9.09	8.83	8.01	7.97	8.32	7.83	6.64	5.96	5.85
% WHO ARE HISPANIC	2.89	3.27	3.38	3.74	3.67	3.82	4.14	3.65	3.79
% WHO ARE ASIAN AMERICAN	1.17	1.28	1.50	1.71	1.57	1.90	1.90	1.96	1.96
% PURSUING DOCTORATE	61.37	61.68	62.10	63.85	65.05	65.35	65.03	65.94	66.61
% OLDER THAN 30	11.55	16.74	15.08	16.15	16.33	16.68	16.86	17.66	18.11
GRE VERBAL MEAN	516	526	513	508	513	511	509	514	512
GRE QUANTITATIVE MEAN	485	490	487	491	494	492	492	500	498
GRE ANALYTICAL MEAN	530	527	532	524	531	531	537	544	543

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.7

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: APPLIED SOCIAL SCIENCES

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3814	3702	3522	3144	2709	2751	3055	3193	3513
% OF TOTAL EXAMINEES **	63.78	64.84	61.44	62.80	61.23	62.52	60.28	59.40	58.17
% WHO ARE FEMALE	71.34	68.91	73.00	71.41	72.46	72.26	71.33	71.41	71.16
% WHO ARE BLACK	13.03	12.37	12.29	12.60	13.73	12.80	10.41	11.02	10.28
% WHO ARE HISPANIC	3.17	2.81	3.21	3.91	3.65	4.62	4.58	3.73	4.44
% WHO ARE ASIAN AMERICAN	1.05	1.03	0.99	1.02	0.89	1.24	0.98	1.13	1.57
% PURSUING DOCTORATE	15.65	17.91	15.39	16.89	16.24	16.90	16.63	17.79	18.36
% OLDER THAN 30	9.74	17.40	15.40	15.80	16.69	17.95	19.74	20.69	21.43
GRE VERBAL MEAN	466	472	466	460	462	458	464	464	463
GRE QUANTITATIVE MEAN	441	446	440	442	441	436	441	440	443
GRE ANALYTICAL MEAN	479	474	481	481	481	480	490	488	491

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1063	1124	939	873	744	755	864	904	995
% OF TOTAL EXAMINEES **	58.18	60.20	55.89	59.75	54.87	58.21	55.38	55.56	54.73
% WHO ARE BLACK	11.38	10.14	11.18	9.97	12.37	9.14	6.94	7.74	6.83
% WHO ARE HISPANIC	3.86	3.38	3.73	4.35	2.96	4.11	3.59	3.10	4.42
% WHO ARE ASIAN AMERICAN	1.32	0.44	1.38	0.92	1.08	1.46	0.81	0.66	1.71
% PURSUING DOCTORATE	20.60	23.67	23.22	23.94	22.85	21.19	23.38	22.35	23.22
% OLDER THAN 30	8.29	19.03	15.48	16.37	13.51	17.91	19.84	22.41	23.94
GRE VERBAL MEAN	477	485	482	479	485	481	487	481	485
GRE QUANTITATIVE MEAN	473	475	477	481	486	476	481	475	480
GRE ANALYTICAL MEAN	487	482	492	489	494	500	508	501	505

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2721	2551	2571	2245	1963	1988	2179	2280	2500
% OF TOTAL EXAMINEES **	66.24	67.08	63.94	64.18	64.11	64.40	62.49	61.18	59.59
% WHO ARE BLACK	13.71	13.29	12.72	13.54	14.26	14.19	11.75	12.37	11.64
% WHO ARE HISPANIC	2.90	2.59	3.03	3.74	3.92	4.78	5.00	3.99	4.44
% WHO ARE ASIAN AMERICAN	0.96	1.25	0.86	1.07	0.82	1.16	1.06	1.32	1.52
% PURSUING DOCTORATE	13.71	15.29	12.60	14.16	13.75	15.24	13.95	16.01	16.52
% OLDER THAN 30	10.14	16.62	15.37	15.57	17.92	17.93	19.68	20.00	20.39
GRE VERBAL MEAN	461	466	460	453	453	450	455	458	454
GRE QUANTITATIVE MEAN	429	434	427	427	424	421	425	427	428
GRE ANALYTICAL MEAN	476	470	477	478	475	473	484	483	486

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.8

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: HEALTH SCIENCES/SERVICE

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	10149	9651	9599	8796	7678	7512	8496	8438	8701
% OF TOTAL EXAMINEES **	75.55	75.86	76.21	77.05	76.25	76.37	75.75	73.62	73.74
% WHO ARE FEMALE	87.58	86.17	88.75	87.63	88.81	90.00	89.81	89.35	89.23
% WHO ARE BLACK	4.76	4.47	4.53	4.22	4.39	4.25	4.30	4.05	4.15
% WHO ARE HISPANIC	1.35	1.16	1.58	1.58	1.55	1.98	1.79	1.59	1.90
% WHO ARE ASIAN AMERICAN	1.29	1.46	1.46	1.27	1.16	1.46	1.24	1.47	1.80
% PURSUING DOCTORATE	22.92	23.09	23.00	23.01	22.40	20.70	20.77	23.06	22.89
% OLDER THAN 30	18.70	28.20	25.37	28.68	32.51	34.42	36.70	39.97	42.04
GRE VERBAL MEAN	485	487	482	481	478	480	482	480	475
GRE QUANTITATIVE MEAN	483	486	486	488	489	484	485	485	481
GRE ANALYTICAL MEAN	508	500	511	505	511	507	515	512	509

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1204	1285	1022	1001	830	719	831	868	906
% OF TOTAL EXAMINEES **	72.75	75.06	71.82	75.49	72.36	71.90	69.19	70.06	70.18
% WHO ARE BLACK	3.49	2.88	2.15	2.50	2.53	2.64	1.93	3.34	2.32
% WHO ARE HISPANIC	2.99	1.48	2.35	3.20	3.01	3.34	4.33	3.00	2.65
% WHO ARE ASIAN AMERICAN	1.99	2.41	1.57	2.30	1.45	1.67	1.93	1.04	3.09
% PURSUING DOCTORATE	50.00	54.32	55.68	52.85	48.67	47.43	44.77	44.82	43.93
% OLDER THAN 30	11.85	20.72	18.83	21.76	23.82	26.71	27.59	32.48	31.56
GRE VERBAL MEAN	488	484	487	495	489	490	491	486	486
GRE QUANTITATIVE MEAN	547	551	558	563	562	548	551	543	544
GRE ANALYTICAL MEAN	521	514	527	526	526	531	539	529	529

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	8887	8316	8519	7707	6819	6761	7630	7539	7764
% OF TOTAL EXAMINEES **	75.96	76.04	76.83	77.21	76.76	76.91	76.51	74.06	74.21
% WHO ARE BLACK	4.95	4.71	4.81	4.41	4.59	4.42	4.56	4.15	4.37
% WHO ARE HISPANIC	1.14	1.11	1.49	1.38	1.38	1.85	1.52	1.43	1.82
% WHO ARE ASIAN AMERICAN	1.19	1.31	1.43	1.12	1.13	1.45	1.17	1.53	1.65
% PURSUING DOCTORATE	19.17	18.22	19.10	19.11	19.18	17.88	18.14	20.60	20.52
% OLDER THAN 30	19.57	29.31	26.11	29.62	33.57	35.22	37.59	40.82	43.17
GRE VERBAL MEAN	484	488	481	479	477	478	481	479	474
GRE QUANTITATIVE MEAN	474	476	478	479	480	477	478	478	473
GRE ANALYTICAL MEAN	506	498	509	503	509	505	512	510	507

* DATA FOR 1979 NOT AVAILABLE

** IN THAT UNDERGRADUATE MAJOR

TABLE 4.9

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: EDUCATION

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	21047	22453	17935	14819	13993	14594	16734	16644	17154
% OF TOTAL EXAMINEES **	83.42	83.83	82.29	81.55	81.44	82.16	81.88	81.85	81.94
% WHO ARE FEMALE	77.07	75.92	77.65	77.38	79.73	79.11	80.64	79.82	79.96
% WHO ARE BLACK	8.45	9.47	7.64	8.28	7.12	6.36	6.54	6.22	6.16
% WHO ARE HISPANIC	3.00	2.93	3.30	4.10	3.50	3.44	3.92	3.26	3.38
% WHO ARE ASIAN AMERICAN	0.75	0.57	0.64	0.68	0.68	0.66	0.75	0.81	1.00
% PURSUING DOCTORATE	19.20	19.11	19.48	20.87	19.47	19.95	18.11	19.69	19.30
% OLDER THAN 30	25.42	36.43	34.10	36.56	34.99	36.48	39.87	42.48	43.71
GRE VERBAL MEAN	429	430	430	428	430	432	431	438	436
GRE QUANTITATIVE MEAN	435	435	436	436	442	439	437	445	445
GRE ANALYTICAL MEAN	452	446	454	457	465	468	469	474	473

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	4670	5255	3871	3175	2790	2979	3143	3294	3360
% OF TOTAL EXAMINEES **	79.57	80.24	78.68	78.51	77.26	78.50	75.25	77.73	76.96
% WHO ARE BLACK	7.75	8.51	6.82	7.28	6.34	5.57	5.35	5.68	6.01
% WHO ARE HISPANIC	3.58	3.77	4.49	4.72	4.12	3.86	4.04	3.64	3.36
% WHO ARE ASIAN AMERICAN	0.56	0.48	0.41	0.57	0.65	0.81	0.89	0.88	1.31
% PURSUING DOCTORATE	31.41	31.97	31.21	32.63	30.39	30.85	29.14	31.60	30.74
% OLDER THAN 30	25.91	44.36	37.90	40.26	41.14	44.16	46.41	50.15	50.86
GRE VERBAL MEAN	420	421	422	424	425	429	427	433	431
GRE QUANTITATIVE MEAN	459	458	460	463	465	461	466	469	469
GRE ANALYTICAL MEAN	442	434	440	446	451	462	465	465	466

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	16221	17047	13926	11467	11157	11546	13495	13286	13716
% OF TOTAL EXAMINEES **	84.58	85.00	83.31	82.41	82.58	83.19	83.56	82.94	83.27
% WHO ARE BLACK	8.66	9.75	7.88	8.55	7.33	6.57	6.82	6.37	6.20
% WHO ARE HISPANIC	2.81	2.67	2.96	3.94	3.35	3.34	3.88	3.18	3.39
% WHO ARE ASIAN AMERICAN	0.81	0.60	0.69	0.72	0.69	0.62	0.73	0.80	0.93
% PURSUING DOCTORATE	15.71	15.16	16.24	17.59	16.72	17.11	15.52	16.71	16.48
% OLDER THAN 30	25.27	33.83	32.93	35.40	33.40	34.40	38.29	40.53	41.90
GRE VERBAL MEAN	431	433	433	430	432	433	432	439	437
GRE QUANTITATIVE MEAN	429	428	429	429	436	434	431	439	439
GRE ANALYTICAL MEAN	455	451	458	460	468	469	471	476	475

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

TABLE 4.10

TRENDS TABLE FOR U.S. CITIZENS WITH SAME UGRAD. & GRAD. MAJOR: BUSINESS/PUBLIC ADMINISTRATION

MALES AND FEMALES

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	3821	4371	3449	2844	2406	2161	2381	2335	2510
% OF TOTAL EXAMINEES **	61.82	65.39	59.27	56.01	52.13	49.12	48.46	45.53	43.04
% WHO ARE FEMALE	37.03	32.35	41.35	41.88	44.01	46.74	47.63	48.65	49.72
% WHO ARE BLACK	13.53	13.57	14.27	14.77	16.33	14.58	13.82	14.22	16.29
% WHO ARE HISPANIC	3.43	3.18	2.96	4.36	3.87	4.72	4.58	3.90	4.98
% WHO ARE ASIAN AMERICAN	1.28	1.30	1.39	1.37	1.25	1.43	1.47	1.24	1.67
% PURSUING DOCTORATE	16.46	18.74	17.02	15.75	16.67	17.26	16.17	17.52	16.41
% OLDER THAN 30	16.18	26.99	24.17	24.36	25.35	28.44	28.33	29.70	30.96
GRE VERBAL MEAN	449	452	450	444	442	451	445	448	444
GRE QUANTITATIVE MEAN	496	502	494	489	482	483	481	483	476
GRE ANALYTICAL MEAN	484	481	485	483	483	494	492	497	491

MALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	2372	2939	2003	1623	1331	1142	1238	1187	1248
% OF TOTAL EXAMINEES **	62.26	65.81	58.67	54.94	51.61	46.88	48.15	45.17	42.45
% WHO ARE BLACK	9.99	10.24	11.23	10.35	11.57	11.21	10.90	10.61	12.34
% WHO ARE HISPANIC	3.67	3.13	3.64	4.44	4.36	4.90	4.52	4.13	5.37
% WHO ARE ASIAN AMERICAN	1.18	1.09	1.50	1.48	1.13	1.23	1.05	1.60	1.68
% PURSUING DOCTORATE	17.54	19.56	17.32	15.96	19.01	18.30	17.69	19.63	19.15
% OLDER THAN 30	18.18	29.71	26.68	28.00	29.95	32.60	29.39	32.96	35.10
GRE VERBAL MEAN	450	453	453	446	448	455	453	452	450
GRE QUANTITATIVE MEAN	515	517	515	509	504	499	506	507	499
GRE ANALYTICAL MEAN	487	484	489	479	482	495	498	500	497

FEMALES ONLY

YEAR OF GRE *

	1978	1980	1981	1982	1983	1984	1985	1986	1987
NUMBER OF EXAMINEES	1415	1414	1426	1191	1059	1010	1134	1136	1248
% OF TOTAL EXAMINEES **	60.89	64.65	60.12	57.43	52.61	52.04	48.84	45.75	43.58
% WHO ARE BLACK	19.65	20.65	18.44	20.74	22.19	18.42	17.11	18.05	20.43
% WHO ARE HISPANIC	3.04	3.32	2.03	4.37	3.31	4.55	4.67	3.61	4.57
% WHO ARE ASIAN AMERICAN	1.34	1.77	1.26	1.26	1.42	1.68	1.94	0.88	1.68
% PURSUING DOCTORATE	14.70	16.90	16.48	15.45	13.60	16.24	14.37	15.32	13.70
% OLDER THAN 30	12.79	21.36	20.48	19.14	19.47	23.63	27.22	26.33	26.77
GRE VERBAL MEAN	447	450	447	443	435	447	436	444	437
GRE QUANTITATIVE MEAN	465	472	464	463	454	466	453	457	453
GRE ANALYTICAL MEAN	479	474	480	489	484	494	485	494	484

*
DATA FOR 1979 NOT AVAILABLE
**
IN THAT UNDERGRADUATE MAJOR

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Table 5.1: The relationship of GENDER to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Female, Each Group	Signif.
Arts and Humanities	Changer	8,258	68.4%	.000
	Nonchanger	15,259	54.2%	
Physical Science and Mathematics	Changer	4,124	41.5%	.000
	Nonchanger	11,854	29.1%	
Engineering	Changer	2,424	19.3%	.001
	Nonchanger	10,610	16.5%	
Biological Sciences	Changer	6,298	59.6%	.000
	Nonchanger	6,277	50.3%	
Applied Biological Environ. Sci.	Changer	1,289	43.7%	.000
	Nonchanger	1,748	32.2%	
Social Sciences	Changer	13,449	61.3%	.000
	Nonchanger	22,216	56.1%	
Applied Social Sci.	Changer	2,518	67.3%	.000
	Nonchanger	3,495	71.5%	
Health Sciences	Changer	3,083	87.5%	.002
	Nonchanger	8,670	89.6%	
Education	Changer	3,762	73.3%	.000
	Nonchanger	17,076	80.3%	
Business and Public Administration	Changer	3,308	48.9%	.386
	Nonchanger	2,496	50.0%	

Table 5.2: The relationship of ETHNICITY to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Non-White, Each Grp	Signif.
Arts and Humanities	Changer	8,106	11.4%	.077
	Nonchanger	15,013	10.7%	
Physical Science and Mathematics	Changer	4,074	15.7%	.000
	Nonchanger	11,693	13.3%	
Engineering	Changer	2,402	16.0%	.000
	Nonchanger	10,489	19.0%	
Biological Sciences	Changer	6,231	15.7%	.035
	Nonchanger	6,211	14.4%	
Applied Biological & Environ. Sci.	Changer	1,275	8.9%	.092
	Nonchanger	1,723	7.3%	
Applied Social Sciences	Changer	2,481	16.1%	.012
	Nonchanger	3,457	18.6%	
Social Sciences	Changer	13,216	16.0%	.000
	Nonchanger	21,897	18.6%	
Education	Changer	3,707	10.5%	
	Nonchanger	16,849	12.2%	.003
Business and Public Administration	Changer	3,254	14.9%	.000
	Nonchanger	2,469	25.0%	

Table 5.3: The relationship of BEING STILL IN OR ALREADY OUT OF COLLEGE to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Already Out of College	Signif.
Arts and Humanities	Changer	8,233	80.3%	*
	Nonchanger	15,216	57.4%	
Physical Science and Mathematics	Changer	4,095	65.3%	*
	Nonchanger	11,814	44.7%	
Engineering	Changer	2,424	75.8%	*
	Nonchanger	10,608	53.1%	
Biological Sciences	Changer	6,280	57.9%	*
	Nonchanger	6,267	43.3%	
Applied Biological and Environ. Science	Changer	1,290	70.5%	*
	Nonchanger	1,736	54.2%	
Social Sciences	Changer	13,356	70.9%	*
	Nonchanger	22,154	47.0%	
Applied Social Sci.	Changer	2,501	78.9%	*
	Nonchanger	3,485	55.7%	
Health Sciences	Changer	3,060	87.6%	*
	Nonchanger	8,598	74.0%	
Education	Changer	3,733	78.7%	NS
	Nonchanger	16,977	77.4%	
Business and Public Administration	Changer	3,206	84.7%	*
	Nonchanger	2,487	58.0%	

* Significant at the .01 level

NS Not Significant

Table 5.4: The relationship of DEGREE OBJECTIVE to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Female, Each Group	Signif.
Arts and Humanities	Changer	8,263	33.3%	*
	Nonchanger	15,254	46.9%	
Physical Science and Mathematics	Changer	4,119	41.2%	*
	Nonchanger	11,852	51.7%	
Engineering	Changer	2,430	31.1%	*
	Nonchanger	10,614	28.5%	
Biological Sciences	Changer	6,277	47.2%	*
	Nonchanger	6,277	61.8%	
Applied Biological and Environ. Science	Changer	1,290	40.5%	*
	Nonchanger	1,742	29.9%	
Social Sciences	Changer	13,456	30.7%	*
	Nonchanger	22,256	66.1%	
Applied Social Sci.	Changer	2,519	25.6%	*
	Nonchanger	3,507	18.4%	
Health Sciences	Changer	3,088	31.3%	*
	Nonchanger	8,662	23.0%	
Education	Changer	3,769	29.3%	*
	Nonchanger	17,102	19.4%	
Business and Public Administration	Changer	3,317	28.6%	*
	Nonchanger	2,508	16.4%	

* Significant at the .01 level

NS Not significant

Table 5.5: The relationship of UNDERGRADUATE GPA IN MAJOR on the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% A or A- GPA, Each Grp	Signif.
Arts and Humanities	Changer	8,137	47.4%	*
	Nonchanger	15,140	63.7%	
Physical Science and Mathematics	Changer	4,084	37.2%	*
	Nonchanger	11,767	51.6%	
Engineering	Changer	2,398	34.2%	*
	Nonchanger	10,517	46.2%	
Biological Sciences	Changer	6,269	34.4%	*
	Nonchanger	6,247	39.9%	
Applied Biological and Environ. Science	Changer	1,278	36.9%	*
	Nonchanger	1,736	42.6%	
Social Sciences	Changer	13,321	40.8%	*
	Nonchanger	22,099	56.5%	
Applied Social Sci.	Changer	2,498	40.4%	*
	Nonchanger	3,470	48.3%	
Health Sciences	Changer	3,063	37.9%	*
	Nonchanger	8,608	41.6%	
Education	Changer	3,730	43.7%	NS
	Nonchanger	16,944	41.7%	
Business and Public Administration	Changer	3,295	34.1%	NS
	Nonchanger	2,484	33.9%	

* Significant at the .01 level

NS Not Significant

Table 5.6: The relationship of FATHER'S EDUCATION to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Fathers B.A. or above	Signif.
Arts and Humanities	Changer	8,186	49.1%	*
	Nonchanger	15,133	55.0%	
Physical Science and Mathematics	Changer	4,077	50.1%	*
	Nonchanger	11,747	52.6%	
Engineering	Changer	2,402	54.7%	NS
	Nonchanger	10,472	55.6%	
Biological Sciences	Changer	6,260	51.2%	NS
	Nonchanger	6,238	52.5%	
Applied Biological and Environ. Science	Changer	1,290	49.2%	*
	Nonchanger	1,737	43.8%	
Social Sciences	Changer	13,316	46.8%	*
	Nonchanger	22,086	50.1%	
Applied Social Sci.	Changer	2,505	44.3%	NS
	Nonchanger	3,472	43.2%	
Health Sciences	Changer	3,060	39.9%	*
	Nonchanger	8,611	37.2%	
Education	Changer	3,740	38.8%	*
	Nonchanger	16,931	33.1%	
Business and Public Administration	Changer	3,288	42.8%	*
	Nonchanger	2,475	35.3%	

* Significant at the .01 level

NS Not Significant

Table 5.7: The relationship of HOURS OF COMMUNITY SERVICE to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	% Some Community Serv.	Signif.
Arts and Humanities	Changer	8,099	63.0%	*
	Nonchanger	15,088	55.2%	
Physical Science and Mathematics	Changer	4,062	54.4%	*
	Nonchanger	11,727	43.9%	
Engineering	Changer	2,387	47.5%	NS
	Nonchanger	10,464	45.1%	
Biological Sciences	Changer	6,230	61.4%	*
	Nonchanger	6,238	51.3%	
Applied Biological and Environ. Science	Changer	1,279	59.2%	NS
	Nonchanger	1,734	56.7%	
Social Sciences	Changer	13,264	66.7%	*
	Nonchanger	22,043	61.5%	
Applied Social Sci.	Changer	2,491	69.7%	NS
	Nonchanger	3,477	70.5%	
Health Sciences	Changer	3,034	66.9%	NS
	Nonchanger	8,566	65.6%	
Education	Changer	3,703	68.5%	*
	Nonchanger	16,827	71.7%	
Business and Public Administration	Changer	3,279	62.1%	NS
	Nonchanger	2,484	64.5%	

* Significant at the .01 level

NS Not Significant

Table 5.8: The relationship of GRE SCORES to the decision to change from each of ten undergraduate fields to another graduate field for GRE examinees in 1987

Undergraduate Field	Change or Not?	Base N	GREV(sig)	GREQ(sig)	GREA(sig)
Arts and Humanities	Changer	8,298	548 (NS)	499 (*)	529 (*)
	Nonchanger	15,322	548	512	547
Physical Science and Mathematics	Changer	4,138	527 (NS)	634 (*)	590 (*)
	Nonchanger	11,894	530	654	615
Engineering	Changer	2,443	535 (*)	669 (*)	603 (*)
	Nonchanger	10,652	512	684	611
Biological Sciences	Changer	6,331	515 (NS)	565 (*)	562 (*)
	Nonchanger	6,304	517	578	577
Applied Biological and Environ. Science	Changer	1,297	504 (*)	544 (NS)	547 (NS)
	Nonchanger	1,751	482	546	546
Social Sciences	Changer	13,504	509 (*)	493 (*)	520 (*)
	Nonchanger	22,310	521	517	545
Applied Social Sci.	Changer	2,526	489 (*)	461 (*)	503 (*)
	Nonchanger	3,513	463	442	491
Health Sciences	Changer	3,099	486 (*)	478 (NS)	505 (NS)
	Nonchanger	8,701	475	481	509
Education	Changer	3,781	478 (*)	475 (*)	500 (*)
	Nonchanger	17,154	435	444	473
Business and Public Administration	Changer	3,322	478 (*)	511 (*)	518 (*)
	Nonchanger	2,510	443	476	491

* Significant at the .01 level

NS Not Significant

Appendix A

Data Set Record Layout for Individual Examinee Data Base

DATA SET RECORD LAYOUT

DATA SET NAME: TJJ6600.GREDBASE.DATA__

RECORD LENGTH: 39

BLOCKING FACTOR: 800

START	END	SIZE	FIELD NAME	VALUE RANGE	COMMENTS
1	1	1	Sex	1,2	1=Male
2	2	1	Education Level	1-8	
3	4	2	Testing Year	78-87	
5	7	3	GRE Verbal Score	200-800	
8	10	3	GRE Quantitative Score	200-800	
11	13	3	GRE Analytical Score	200-800	
14	14	1	Previous GRE	1-3	BQA
15	15	1	U.S. Citizenship	1,2	BQB1
16	16	1	Ethnicity	1-8	BQD
17	17	1	English Best Language	1,2	BQE1
18	19	2	Year of Bachelor's Degree	00-99	BQH
20	22	3	Undergraduate Major	00-99	BQI
23	23	1	Degree Objective	1-5	BQJ
24	26	3	Graduate Major	00-99	BQK
27	27	1	Undergraduate Major GPA	1-7	BQO
28	28	1	Last 2 years GPA	1-7	BQP
29	29	1	Hours Worked for Pay	1-5	BQR
30	30	1	Hours of Community Service	1-5	BQS
31	31	1	Most Important Honor	1-8	BQT
32	32	1	Father's Education Level	1-6	BQU
33	33	1	Mother's Education Level	1-6	BQV
34	39	6	Date of Birth	MMDDYY	

Appendix B

Revised Major Field Code Numbers

Revised Major Field Code Numbers

1	Mathematics
2	Applied Mathematics
3	Statistics
4	Physics
5	Astronomy
6	Geology
7	Oceanography
8	Chemistry
9	Computer Science
10	Metallurgy
11	Other Phys Science
12	Engineering, Aerospace
13	Engineering, Chemical
14	Engineering, Civil
15	Engineering, Electrical
16	Engineering, Industrial
17	Engineering, Mechanical
18	Engineering, Other
19	Biology
20	Biochemistry
21	Biophysics
22	Botany
23	Genetics
24	Zoology
25	Entomology
26	Anatomy
27	Microbiology
28	Parasitology
29	Physiology
30	Molecular/Cell Biology
31	Bacteriology
32	Agriculture
33	Mining
34	Forestry
35	Environmental Science
36	Audiology
37	Physical Therapy
38	Occupational Therapy
39	Nutrition
40	Home Economics
41	Dentistry
42	Medicine
43	Optometry
44	Osteopathy
45	Nursing
46	Pathology
47	Pharmacology
48	Pharmacy
49	Veterinary Medicine
50	Other Biol Science
51	Public Health
52	Hospital/Health Administration
53	Public Administration
54	Urban Development
55	Geography
56	Govt/Political Science
57	History
58	International Relations
59	Law
60	Industrial Relations/Personnel
61	Business/Commerce
62	Economics
63	American Studies
64	Anthropology
65	Sociology
66	Social Work
67	Educational Psychology
68	Psychology
69	Social Psychology
70	Communications
71	Journalism
72	Library Science
73	Other Social Science
74	Education
75	Education Administration
76	Physical Education
77	Guidance/Counseling
78	Speech
79	English
80	Italian
81	French
82	German
83	Russian
84	Slavic Studies
85	Spanish
86	Far Eastern Languages
87	Near Eastern Languages
88	Classical Languages
89	Other Foreign Languages
90	Linguistics
91	Comparative Literature
92	Religious Studies
93	Philosophy
94	Art History
95	Architecture
96	Archaeology
97	Fine Arts/Design
98	Dramatic Arts
99	Music
100	Other Humanities
101	Other Field

Appendix C

Sample of the Matrix of Detailed Major Fields: Of Those Examinees Planning to Earn a Doctorate, the Percentage in 1987 Who Were Female

Of all examinees with a B.S. in math, intending to earn a doctorate in math, 33% were female.

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
THOSE CONDSIDERING DOCTORAL OR POSTDOCTORAL STUDY
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1 MATHEMATICS	33	42	0	18	0	100	0	50	29	0	0	0	0	0	7	50	25	0	40	100	0	0	0	0	0
2 APPLIED MATH	27	35	0	50	0	0	0	0	0	0	0	0	0	0	50	0	33	33	0	0	0	0	0	0	0
3 STATISTICS	44	75	38	0	0	0	0	100	33	0	0	0	100	0	0	100	0	0	0	100	0	0	0	0	0
4 PHYSICS	18	50	0	16	0	0	0	0	100	0	0	0	0	0	9	0	0	24	33	0	0	0	0	0	0
5 ASTRONOMY	0	0	0	26	11	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 GEOLOGY	33	0	0	33	0	30	0	83	0	0	25	0	0	0	0	0	0	50	60	0	0	0	0	0	0
7 OCEANOGRAPHY	50	0	0	25	0	54	44	14	0	100	33	0	0	0	0	0	50	50	37	0	0	0	0	0	0
8 CHEMISTRY	33	0	0	0	0	0	100	31	0	0	0	0	17	0	0	0	0	100	55	42	0	0	0	0	0
9 COMPUTER SCIENCE	23	12	0	9	0	0	0	10	18	0	17	0	8	33	4	11	15	22	25	0	0	0	50	0	0
10 METALLURGY	100	0	0	0	0	0	0	0	0	24	0	0	100	0	0	0	29	0	0	0	0	0	0	0	0
11 OTHER PHY. SCIENCE	56	100	0	27	0	41	0	7	0	0	21	0	36	0	0	0	0	11	0	100	0	0	0	0	0
12 ENGIN., AERONAUTICAL	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	11	20	0	0	0	0	0	0	0
13 ENGINEERING, CHEMICAL	0	0	0	0	0	0	0	43	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0
14 ENGINEERING, CIVIL	100	0	0	0	0	11	0	100	0	0	0	0	20	22	0	0	0	15	33	0	0	0	0	0	0
15 ENGINEERING, ELECTR.	10	0	0	10	0	0	0	0	14	0	0	0	13	0	11	25	7	18	0	0	0	0	0	100	0
16 ENGINEERING, INDUST.	60	33	0	0	0	0	0	100	50	0	100	0	0	0	10	36	14	14	0	0	0	0	0	0	0
17 ENGINEERING, MECHAN.	25	0	0	21	0	0	0	0	0	100	0	11	0	0	0	0	12	33	0	0	0	0	0	0	0
18 ENGINEERING, OTHER	56	25	0	23	0	25	0	60	30	25	25	0	36	33	21	50	24	24	0	50	0	0	0	0	0
19 BIOLOGY	20	0	0	33	100	0	0	20	0	0	0	0	0	0	0	0	0	0	50	67	0	25	0	39	0
20 BIOCHEMISTRY	0	0	0	0	100	0	0	45	0	0	0	0	100	0	0	0	0	0	38	42	0	0	0	60	0
21 BIOPHYSICS	0	0	0	31	0	0	0	50	0	0	0	0	0	0	0	0	0	0	10	50	27	0	0	67	0
22 BOTANY	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	53	50	0	37	0	100	0
23 GENETICS	100	0	0	0	0	0	0	57	0	100	100	0	50	100	0	0	0	0	57	41	0	50	55	75	100
24 ZOOLOGY	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	38	0
25 ENTOMOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	18	24
26 ANATOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	50	0	0	0	0	43	0
27 MICROBIOLOGY	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	57	82	0	50	40	30	0
28 PARASITOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 PHYSIOLOGY	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	50	48	36	0	0	0	33	0
30 MOLECULAR & CELL BIO.	0	0	0	0	0	0	0	39	0	0	0	0	50	0	0	0	0	0	46	33	100	29	67	45	0
31 BACTERIOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	0	0	0	0	0
32 AGRICULTURE	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	43	0	0	33	0	0	0
33 MINING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 FORESTRY	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	20	100	0	100	100	0	0
35 ENVIRONMENTAL SCIENCE	100	100	0	25	0	41	100	50	50	0	100	100	0	25	0	0	0	0	42	33	0	63	0	26	0
36 AUDIOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	0	0	0	0	0	0
37 PHYSICAL THERAPY	100	0	0	0	0	0	0	67	0	0	0	0	0	0	0	0	0	0	67	100	0	0	0	0	0
38 OCCUPATIONAL THERAPY	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
39 NUTRITION	0	0	100	0	0	0	0	89	0	0	0	0	0	0	0	0	0	0	75	20	0	0	0	60	0
40 HOME ECONOMICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 DENTISTRY	0	0	0	0	0	0	0	18	0	0	0	0	0	0	0	0	0	0	25	100	0	0	0	0	0
42 MEDICINE	67	0	0	17	0	0	0	47	50	0	0	0	50	0	30	0	20	18	59	54	0	0	0	58	0
43 OPTOMETRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44 OSTEOPATHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 NURSING	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	0	0	0	0	0	0
46 PATHOLOGY	0	0	0	0	0	0	0	60	0	0	0	0	0	0	0	0	0	0	60	14	100	0	0	57	0
47 PHARMACOLOGY	50	0	0	0	0	0	0	28	100	0	100	0	0	0	0	0	0	0	55	43	0	0	0	25	0
48 PHARMACY	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	[illegible]	57	0	0	0	50	0
49 VETERINARY MEDICINE	80	0	0	40	0	0	0	59	100	0	0	0	67	0	0	0	100	50	68	66	0	100	60	66	0
50 OTHER BIOLOGICAL SC.	50	0	0	50	0	0	0	11	0	0	0	0	100	0	0	0	0	67	[illegible]	57	0	33	80	30	0
51 PUBLIC HEALTH	56	0	100	0	0	67	0	31	0	0	0	0	100	100	0	0	0	25	67	100	100	0	50	44	0
52 HOSP/HEALTH SERVICE A	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0	0	0
53 PUBLIC ADMINISTRATION	100	100	0	33	0	50	0	0	0	0	0	0	100	50	67	0	0	0	67	0	0	0	0	0	0
54 URBAN DEVELOPMENT	0	0	0	0	0	50	0	0	0	0	0	0	0	50	0	0	0	33	100	0	0	0	0	0	0
55 GEOGRAPHY	0	0	0	0	0	40	0	0	0	0	0	0	0	0	0	0	0	100	50	0	0	0	0	0	0
56 GOVERNMENT/POL. SCI.	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	67	0	0	0	0	0	0
57 HISTORY	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	0	0	0	100	0
58 INTERNATIONAL RELAT.	33	0	0	0	0	33	100	0	33	0	50	0	0	0	50	0	0	0	83	0	0	0	0	0	0
59 LAW	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60 INDUST. REL/PERSONNEL	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0
61 BUSINESS & COMMERCE	17	0	0	50	0	0	0	33	14	0	0	0	0	0	0	33	0	20	17	0	0	0	0	50	0
62 ECONOMICS	41	33	0	0	0	14	0	0	29	0	0	0	33	0	0	0	20	0	20	100	0	0	0	0	0
63 AMERICAN STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64 ANTHROPOLOGY	50	0	0	0	0	0	0	100	0	0	0	0	0	100	0	0	0	0	67	0	0	0	0	0	0

Of those examinees with a B.S. in biology and planning a doctorate in

BEST COPY AVAILABLE

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
65 SOCIOLOGY	0	0	0	0	0	0	0	0	100	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0
66 SOCIAL WORK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0
67 EDUC. PSYCHOLOGY	60	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	100	0	60	0	0	0	0	0	0
68 PSYCHOLOGY	71	0	0	25	0	60	0	72	38	0	0	100	50	0	29	0	13	36	73	63	0	67	75	36	0
69 SOCIAL PSYCHOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	0	75	100	0	0	0	0	0
70 COMMUNICATIONS	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
71 JOURNALISM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72 LIBRARY SCIENCE	50	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0
73 OTHER SOCIAL SCIENCE	50	100	0	0	0	33	0	67	0	0	0	0	0	0	0	0	0	0	83	100	0	0	0	0	100
74 EDUCATION	67	75	0	30	0	38	0	48	38	0	29	0	0	0	0	50	0	0	52	60	0	50	0	43	100
75 EDUCATIONAL ADMIN.	46	100	0	0	0	50	100	50	100	0	0	0	0	50	0	0	0	33	23	100	0	0	0	0	0
76 PHYSICAL EDUCATION	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	50	0	0	0	50	0
77 GUIDANCE & COUNSELING	100	0	0	0	0	67	0	0	100	0	0	0	0	100	0	0	0	0	55	0	0	0	0	0	0
78 SPEECH	100	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
79 ENGLISH	33	0	0	0	0	50	0	40	33	0	0	0	100	0	50	0	0	0	56	100	0	0	0	0	0
80 ITALIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 FRENCH	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
82 GERMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
83 RUSSIAN	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
84 SLAVIC STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85 SPANISH	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
86 FAR EASTERN LANG.	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87 NEAR EASTERN LANG.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88 CLASSICAL LANGUAGE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89 OTHER FOREIGN LANG.	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90 LINGUISTICS	29	100	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	75	100	0	0	0	0	0
91 COMPARATIVE LIT.	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0
92 RELIG. STUDIES/RELIG.	40	0	0	44	0	25	0	40	0	0	0	0	0	0	0	0	0	50	29	0	0	0	0	33	0
93 PHILOSOPHY	33	0	0	0	0	50	0	17	33	0	0	0	100	0	0	0	0	0	25	100	0	0	0	100	0
94 ART HISTORY	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	100	33	0	0	0	0	0	0
95 ARCHITECTURE	100	0	0	100	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
96 ARCHAEOLOGY	100	0	0	50	0	67	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
97 FINE ARTS, ART DESIGN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98 DRAMATIC ARTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99 MUSIC	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 OTHER HUMANITIES	67	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0
101 OTHER	37	0	0	27	0	50	0	50	50	0	0	0	25	0	18	33	43	15	51	83	0	50	0	44	0
102 TOTAL	36	35	34	17	11	32	42	34	19	26	18	7	29	21	11	31	13	23	52	44	29	39	54	42	26

Of all examinees with a B.S. in physics, planning to earn a doctorate, 17% were women.

Of all examinees with a B.S. in genetics, planning to earn a doctorate, 54% were female.

BEST COPY AVAILABLE

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1 MATHEMATICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 APPLIED MATH	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 STATISTICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	100	0	0
4 PHYSICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	100
5 ASTRONOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 GEOLOGY	0	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 OCEANOGRAPHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
8 CHEMISTRY	0	0	0	0	0	100	100	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0
9 COMPUTER SCIENCE	0	100	0	0	0	100	0	0	67	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0
10 METALLURGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 OTHER PHY. SCIENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
12 ENGIN., AERONAUTICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 ENGINEERING, CHEMICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 ENGINEERING, CIVIL	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
15 ENGINEERING, ELECTR.	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
16 ENGINEERING, INDUST.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
17 ENGINEERING, MECHAN.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 ENGINEERING, OTHER	0	0	0	0	0	0	0	0	0	67	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
19 BIOLOGY	0	55	0	0	0	0	50	0	0	33	0	0	0	0	100	0	100	0	0	50	0	0	0	67	29
20 BIOCHEMISTRY	0	46	0	0	50	0	50	0	0	100	0	0	0	100	0	0	40	0	0	0	0	0	50	0	60
21 BIOPHYSICS	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 BOTANY	0	50	0	0	0	0	10	0	67	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	50
23 GENETICS	0	50	0	100	43	100	50	0	0	0	0	0	0	0	0	0	60	0	0	50	50	0	0	100	29
24 ZOOLOGY	0	100	0	0	0	0	100	0	0	38	0	0	0	0	100	0	0	0	0	100	0	0	0	67	33
25 ENTOMOLOGY	0	0	0	100	50	0	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 ANATOMY	33	100	0	33	0	0	0	0	0	0	0	100	100	0	0	0	33	0	0	0	0	0	0	100	33
27 MICROBIOLOGY	0	48	0	100	50	100	100	0	0	50	0	0	0	0	0	0	46	0	0	0	100	0	0	0	80
28 PARASITOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 PHYSIOLOGY	0	0	0	46	100	0	42	0	0	50	0	67	0	100	100	0	25	0	0	88	0	0	100	67	36
30 MOLECULAR & CELL BIO.	0	39	0	17	42	25	40	0	0	100	0	0	0	100	0	0	50	0	0	100	100	0	0	0	89
31 BACTERIOLOGY	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	100
32 AGRICULTURE	0	0	0	0	0	0	28	0	0	0	0	0	0	0	100	0	50	0	0	0	0	0	0	0	0
33 MINING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 FORESTRY	0	0	0	0	0	0	25	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
35 ENVIRONMENTAL SCIENCE	0	0	0	0	0	0	43	0	29	42	0	0	0	0	0	0	0	0	0	100	0	0	0	0	50
36 AUDIOLOGY	0	0	0	0	0	0	0	0	0	0	77	0	0	0	100	0	100	0	0	0	0	0	0	0	0
37 PHYSICAL THERAPY	100	0	0	33	0	0	0	0	0	0	0	65	100	0	0	0	71	0	0	0	0	0	0	0	80
38 OCCUPATIONAL THERAPY	0	0	0	0	0	0	0	0	0	0	0	0	85	0	0	0	0	0	0	100	0	0	0	0	0
39 NUTRITION	0	100	0	100	0	0	36	0	0	0	0	0	0	90	92	100	100	0	0	100	0	0	100	0	80
40 HOME ECONOMICS	0	0	0	0	0	0	100	0	0	0	0	0	0	100	98	0	0	0	0	100	0	0	0	0	0
41 DENTISTRY	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	50	0	0	0	0	100
42 MEDICINE	0	36	0	33	43	0	60	0	0	50	0	0	0	67	100	0	48	0	0	82	0	0	0	100	72
43 OPTOMETRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44 OSTEOPATHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 NURSING	0	100	0	0	0	0	0	0	0	100	0	0	0	100	100	0	100	0	0	94	0	0	0	0	100
46 PATHOLOGY	0	44	0	50	0	100	50	0	0	100	0	0	0	0	0	0	67	0	0	0	25	0	0	50	60
47 PHARMACOLOGY	0	33	0	67	25	0	0	0	0	0	0	100	0	100	0	0	40	0	0	100	0	38	44	50	64
48 PHARMACY	0	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0	80	0	0	0	0	0	38	0	33
49 VETERINARY MEDICINE	0	62	0	60	100	60	49	0	0	60	0	0	0	50	0	0	60	0	0	100	100	0	100	64	67
50 OTHER BIOLOGICAL SC.	0	32	0	50	40	50	23	0	50	40	100	100	0	50	0	0	25	0	0	71	0	0	0	100	50
51 PUBLIC HEALTH	0	61	0	100	0	100	50	0	0	29	0	83	67	88	100	75	70	0	0	97	0	0	17	0	83
52 HOSP/HEALTH SERVICE A	0	100	0	0	0	0	0	0	0	0	0	50	0	0	100	100	50	0	0	90	0	0	17	0	50
53 PUBLIC ADMINISTRATION	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0	64	0	0	0	0	100
54 URBAN DEVELOPMENT	0	0	0	0	0	0	0	0	0	100	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0
55 GEOGRAPHY	0	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
56 GOVERNMENT/POL. SCI.	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
57 HISTORY	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
58 INTERNATIONAL RELAT.	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
59 LAW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0
60 INDUST. REL/PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0
61 BUSINESS & COMMERCE	0	0	0	0	0	0	67	0	0	100	0	0	0	100	50	0	100	0	0	78	0	0	0	0	0
62 ECONOMICS	0	0	0	0	0	0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63 AMERICAN STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64 ANTHROPOLOGY	100	0	0	0	0	0	0	0	0	75	0	100	100	75	0	0	0	0	0	100	100	0	0	0	0

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
65 SOCIOLOGY	0	0	0	0	0	100	0	0	0	0	0	100	100	0	0	0	0	0	0	100	0	0	100	0	50
66 SOCIAL WORK	0	0	0	0	0	0	100	0	0	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	100
67 EDUC. PSYCHOLOGY	0	100	0	0	0	0	0	0	0	0	0	0	67	100	100	100	100	0	0	100	100	0	0	0	100
68 PSYCHOLOGY	0	29	0	60	50	67	75	0	33	71	0	80	90	100	90	67	57	0	0	94	100	50	75	0	82
69 SOCIAL PSYCHOLOGY	0	0	0	100	0	0	0	0	0	0	0	0	0	0	50	0	100	0	0	100	0	0	0	0	50
70 COMMUNICATIONS	0	0	0	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	100	0	0
71 JOURNALISM	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
72 LIBRARY SCIENCE	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0
73 OTHER SOCIAL SCIENCE	0	0	0	0	0	0	33	0	0	100	0	100	100	0	83	0	100	0	0	100	0	0	0	0	100
74 EDUCATION	0	100	0	50	100	0	38	0	100	50	100	100	75	80	97	100	50	0	0	96	0	0	67	100	100
75 EDUCATIONAL ADMIN.	0	67	0	0	100	100	15	0	0	33	100	100	67	100	97	100	33	0	0	96	0	0	0	100	100
76 PHYSICAL EDUCATION	0	0	0	50	0	0	0	0	0	0	0	50	0	50	0	0	33	0	0	100	0	0	0	0	0
77 GUIDANCE & COUNSELING	0	0	0	0	0	0	50	0	0	100	100	0	0	0	100	0	100	0	0	100	0	0	100	0	100
78 SPEECH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0
79 ENGLISH	100	67	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
80 ITALIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 FRENCH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82 GERMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83 RUSSIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84 SLAVIC STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85 SPANISH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
86 FAR EASTERN LANG.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87 NEAR EASTERN LANG.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88 CLASSICAL LANGUAGE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89 OTHER FOREIGN LANG.	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
90 LINGUISTICS	0	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
91 COMPARATIVE LIT.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92 RELIG. STUDIES/RELIG.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	50	0	0	100	0	0	0	0	75
93 PHILOSOPHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0
94 ART HISTORY	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0
95 ARCHITECTURE	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0
96 ARCHAEOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97 FINE ARTS, ART DESIGN	0	0	0	0	0	100	100	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	100	0
98 DRAMATIC ARTS	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	100	0	0	0	0	100
99 MUSIC	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 OTHER HUMANITIES	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
101 OTHER	0	13	0	0	0	0	50	0	0	33	100	0	0	100	100	0	0	0	0	93	0	0	60	0	20
102 TOTAL	31	48	0	48	42	55	37	0	24	45	78	70	80	88	96	31	52	0	0	94	73	31	42	63	61

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
1 MATHEMATICS	0	0	0	0	0	0	100	0	0	0	0	33	0	100	0	0	0	0	0	0	0	0	0	43	0	0
2 APPLIED MATH	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 STATISTICS	0	0	0	0	0	0	0	0	0	0	20	33	0	100	50	0	0	100	0	0	0	0	0	50	0	0
4 PHYSICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 ASTRONOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
6 GEOLOGY	0	0	0	0	33	100	0	0	0	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	100	0
7 OCEANOGRAPHY	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 CHEMISTRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	50	0	0
9 COMPUTER SCIENCE	0	0	0	0	0	0	0	60	0	100	27	60	0	50	50	0	50	26	40	0	50	0	0	33	0	100
10 METALLURGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 OTHER PHY. SCIENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0
12 ENGIN., AERONAUTICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
13 ENGINEERING, CHEMICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 ENGINEERING, CIVIL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0
15 ENGINEERING, ELECTR.	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 ENGINEERING, INDUST.	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0
17 ENGINEERING, MECHAN.	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 ENGINEERING, OTHER	0	0	0	0	0	0	100	0	0	0	25	0	0	0	100	0	0	33	0	0	0	0	0	100	0	0
19 BIOLOGY	0	0	0	0	100	100	0	0	0	100	50	0	0	100	0	0	0	44	0	0	0	0	0	25	0	0
20 BIOCHEMISTRY	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
21 BIOPHYSICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 BOTANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0
23 GENETICS	100	0	0	0	0	100	50	0	0	100	0	0	100	100	100	0	100	60	0	0	0	0	0	100	0	0
24 ZOOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	50	0	0	0	0	0	67	0	0
25 ENTOMOLOGY	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	89	0	0	0	0	0	0	0	0
26 ANATOMY	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	100
27 MICROBIOLOGY	50	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	75	0	0	0	0	0	100	0	0
28 PARASITOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 PHYSIOLOGY	0	0	0	0	0	67	0	0	0	0	25	0	0	0	0	0	0	50	0	100	0	0	0	40	0	57
30 MOLECULAR & CELL BIO.	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	40	0	100	100	0	0	0	0	0
31 BACTERIOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	0	0	0	0	0	0	0
32 AGRICULTURE	100	0	0	0	0	0	0	0	0	0	33	60	0	100	0	0	0	0	100	0	0	0	0	100	0	0
33 MINING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 FORESTRY	0	0	0	0	0	0	50	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0
35 ENVIRONMENTAL SCIENCE	50	0	0	0	20	100	33	0	0	0	0	25	100	33	33	0	0	60	0	0	0	0	0	100	0	0
36 AUDIOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	50	0	100	0	0	0	67	0	0
37 PHYSICAL THERAPY	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	71	100	0	0	0	100	100	0	60
38 OCCUPATIONAL THERAPY	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	100	0	0	0	0	0	100	0	100
39 NUTRITION	100	0	0	0	0	0	100	0	0	0	0	0	0	0	100	100	0	100	100	0	0	0	0	100	0	100
40 HOME ECONOMICS	0	0	0	0	100	0	0	0	0	0	100	0	0	0	0	0	0	86	0	0	100	0	0	80	0	100
41 DENTISTRY	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	17	0	0	0	0	0	0	0	0
42 MEDICINE	0	0	0	0	0	75	100	0	0	0	0	50	0	0	100	0	0	63	33	0	0	0	0	0	0	67
43 OPTOMETRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44 OSTEOPATHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 NURSING	100	100	0	0	0	0	0	0	0	0	0	0	0	100	75	100	0	90	0	0	0	0	100	75	0	0
46 PATHOLOGY	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0	100	0	100
47 PHARMACOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	56	0	0	0	0	0	0	0	100
48 PHARMACY	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
49 VETERINARY MEDICINE	0	0	0	0	0	100	60	0	0	0	63	17	0	100	0	0	0	63	0	0	0	0	100	100	0	0
50 OTHER BIOLOGICAL SC.	0	100	0	0	0	0	0	0	0	100	0	0	0	0	50	0	0	57	100	100	0	0	100	100	0	67
51 PUBLIC HEALTH	62	57	0	0	0	83	75	100	0	0	38	0	100	71	86	100	100	61	71	33	0	0	90	55	0	57
52 HOSP/HEALTH SERVICE A	100	37	100	100	0	50	0	0	0	0	30	0	0	0	100	0	0	58	100	0	0	0	100	67	0	100
53 PUBLIC ADMINISTRATION	75	50	36	50	0	38	29	63	44	25	38	52	0	0	63	67	100	58	50	27	100	0	45	62	0	50
54 URBAN DEVELOPMENT	0	0	0	68	67	31	40	33	0	100	67	38	0	33	71	67	0	50	100	50	100	0	57	43	0	0
55 GEOGRAPHY	0	0	0	67	31	40	25	0	0	0	20	0	50	13	33	0	0	33	0	0	100	0	100	50	0	100
56 GOVERNMENT/POL. SCI.	0	0	14	0	0	34	21	47	50	67	55	18	0	100	33	0	0	40	50	50	78	0	33	33	0	33
57 HISTORY	0	0	100	0	20	34	36	63	0	0	29	47	53	42	67	0	0	18	0	0	47	0	50	29	0	33
58 INTERNATIONAL RELAT.	0	0	0	0	17	38	30	47	0	67	39	48	0	38	50	100	0	60	100	71	57	0	50	57	0	0
59 LAW	0	0	0	0	0	54	22	40	42	0	17	25	0	0	44	100	0	62	0	0	100	0	44	100	0	0
60 INDUST. REL/PERSONNEL	0	0	0	0	0	45	14	0	100	43	45	25	0	0	67	67	0	72	75	25	0	0	50	67	0	0
61 BUSINESS & COMMERCE	0	100	0	0	100	36	40	25	0	0	40	33	0	78	50	67	0	50	0	46	50	0	29	43	0	67
62 ECONOMICS	0	0	0	0	100	29	27	53	0	0	26	34	0	25	50	0	0	83	100	75	50	0	25	89	0	0
63 AMERICAN STUDIES	0	0	100	0	0	40	50	50	0	0	0	0	58	75	0	0	0	0	0	75	100	0	33	100	0	0
64 ANTHROPOLOGY	100	0	0	100	0	50	71	83	0	0	75	0	0	63	50	0	0	59	50	100	67	0	45	80	0	100

Of all examinees with a bachelor's degree in economics, planning to earn a doctorate in economics, 34% are female.

Of all examinees with a bachelor's degree in psychology, planning to earn a doctorate in psychology, 67% were women.)

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
, 1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76
65 SOCIOLOGY	0	100	50	0	100	35	50	67	50	0	43	33	100	27	61	86	100	50	47	25	50	0	53	64	100	100
66 SOCIAL WORK	0	0	67	100	0	80	44	0	50	0	100	33	0	75	69	82	75	75	81	0	0	0	67	88	0	100
67 EDUC. PSYCHOLOGY	100	100	0	100	100	38	67	100	0	0	64	33	0	100	43	65	65	71	50	100	100	100	67	83	100	33
68 PSYCHOLOGY	67	100	100	50	67	47	46	80	67	75	49	59	40	73	71	75	58	67	65	69	74	0	73	86	100	65
69 SOCIAL PSYCHOLOGY	0	0	0	0	0	67	25	0	0	75	73	0	0	100	85	100	100	57	57	100	0	0	60	88	0	0
70 COMMUNICATIONS	0	100	100	0	0	38	44	0	0	100	42	50	0	0	67	50	0	57	50	55	66	0	40	67	0	100
71 JOURNALISM	0	0	0	0	0	71	29	50	100	100	0	0	0	100	100	0	0	50	0	69	61	100	50	0	0	0
72 LIBRARY SCIENCE	0	0	0	0	0	67	61	100	0	0	60	0	100	0	0	100	100	100	0	50	50	89	50	76	0	100
73 OTHER SOCIAL SCIENCE	0	0	100	100	50	42	45	44	0	0	62	86	0	67	69	62	0	68	20	67	40	100	52	72	0	63
74 EDUCATION	50	50	100	0	40	38	40	83	67	20	53	29	50	62	65	63	70	74	77	47	39	50	48	78	100	48
75 EDUCATIONAL ADMIN.	0	0	50	0	50	40	23	0	0	50	30	19	75	50	58	67	71	49	83	58	75	100	59	58	37	27
76 PHYSICAL EDUCATION	100	0	0	0	0	0	50	0	0	0	38	50	0	0	100	100	0	35	0	0	33	0	67	39	0	48
77 GUIDANCE & COUNSELING	0	100	50	0	50	33	46	67	25	0	43	67	0	75	58	92	71	64	59	80	75	0	62	83	0	44
78 SPEECH	0	100	0	0	0	33	100	0	0	100	100	50	0	67	67	100	100	100	0	80	0	0	0	86	0	100
79 ENGLISH	0	0	0	0	0	64	52	40	0	25	44	47	88	0	83	100	100	82	80	52	71	100	100	67	0	100
80 ITALIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 FRENCH	0	0	0	0	0	0	50	33	0	0	100	100	100	0	0	0	0	0	0	0	0	0	100	0	0	0
82 GERMAN	0	0	0	0	0	67	0	100	0	0	0	0	0	100	0	0	0	0	0	0	100	0	0	0	0	0
83 RUSSIAN	0	0	0	0	0	59	52	50	0	0	0	100	100	0	0	0	0	0	100	0	0	0	50	100	0	0
84 SLAVIC STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85 SPANISH	0	0	0	0	0	33	100	67	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	50	0	0
86 FAR EASTERN LANG.	0	0	0	0	0	0	17	0	0	0	0	0	100	50	0	0	0	0	0	0	0	0	0	0	0	0
87 NEAR EASTERN LANG.	0	0	0	0	0	100	0	0	0	0	0	100	0	100	100	0	0	0	0	100	0	0	0	0	0	0
88 CLASSICAL LANGUAGE	0	0	0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89 OTHER FOREIGN LANG.	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	100	0
90 LINGUISTICS	0	0	100	0	100	100	67	50	0	0	0	25	0	86	75	0	0	57	0	0	60	0	0	75	0	0
91 COMPARATIVE LIT.	0	0	0	0	0	50	83	0	0	100	0	100	50	0	0	0	0	33	0	0	100	0	100	100	0	0
92 RELIG. STUDIES/RELIG.	0	0	0	100	50	30	16	25	0	0	14	38	100	17	29	40	67	32	11	29	18	0	50	30	0	20
93 PHILOSOPHY	0	0	0	0	0	27	33	0	0	0	11	0	0	50	20	0	0	31	0	0	50	0	50	25	0	0
94 ART HISTORY	0	0	0	0	0	71	70	0	0	0	0	67	0	50	0	0	0	100	0	0	100	0	0	100	0	0
95 ARCHITECTURE	0	0	0	100	0	0	50	100	0	0	0	0	0	100	0	0	0	0	0	0	100	0	0	0	0	0
96 ARCHAEOLOGY	0	0	0	0	0	0	50	0	0	0	67	50	0	60	40	0	0	100	0	0	0	0	25	100	0	0
97 FINE ARTS, ART DESIGN	0	0	0	0	0	50	33	0	0	0	0	0	0	100	100	0	0	60	0	100	0	0	0	86	0	0
98 DRAMATIC ARTS	0	0	0	0	0	100	33	0	0	0	50	0	100	100	100	0	0	100	0	50	0	0	50	67	0	100
99 MUSIC	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	33	0	0	50	0	0	67	100	0
100 OTHER HUMANITIES	0	0	0	100	0	50	70	50	0	0	0	100	0	0	100	0	0	0	0	71	100	0	100	67	0	0
101 OTHER	0	0	0	0	0	40	40	80	100	0	35	54	0	43	56	40	100	54	25	38	100	0	80	87	0	48
102 TOTAL	63	51	40	68	35	38	36	51	42	54	39	36	58	60	62	75	64	66	60	54	62	75	56	72	44	48

Regardless of undergraduate major, 32% of all examinees planning to earn a doctorate in mathematics were female

STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
1 MATHEMATICS	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	50	0	0	0	0	100	0	0	50	32
2 APPLIED MATH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
3 STATISTICS	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	100	45
4 PHYSICS	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	16
5 ASTRONOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
6 GEOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	31
7 OCEANOGRAPHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
8 CHEMISTRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	50	0	0	0	0	0	100	0	50	32
9 COMPUTER SCIENCE	0	0	17	0	0	0	0	0	0	50	0	0	0	25	100	0	0	0	50	0	33	33	25	33	25	18
10 METALLURGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
11 OTHER PHY. SCIENCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	21
12 ENGIN., AERONAUTICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
13 ENGINEERING, CHEMICAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
14 ENGINEERING, CIVIL	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
15 ENGINEERING, ELECTR.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	11
16 ENGINEERING, INDUST.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	29
17 ENGINEERING, MECHAN.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
18 ENGINEERING, OTHER	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
19 BIOLOGY	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	48
20 BIOCHEMISTRY	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0	0	100	25	43
21 BIOPHYSICS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	100	33
22 BOTANY	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
23 GENETICS	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	55
24 ZOOLOGY	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	40
25 ENTOMOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	30
26 ANATOMY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
27 MICROBIOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	80	53
28 PARASITOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 PHYSIOLOGY	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	46
30 MOLECULAR & CELL BIO.	0	0	100	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	17	43
31 BACTERIOLOGY	0	100	100	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
32 AGRICULTURE	0	0	100	0	0	0	100	0	0	0	0	0	0	0	100	0	50	0	0	0	100	0	0	0	33	30
33 MINING	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34 FORESTRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	29
35 ENVIRONMENTAL SCIENCE	0	0	50	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	60	42
36 AUDIOLOGY	0	88	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	67	78
37 PHYSICAL THERAPY	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	33	64
38 OCCUPATIONAL THERAPY	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	82
39 NUTRITION	0	0	100	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100	67	82
40 HOME ECONOMICS	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	100	92
41 DENTISTRY	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
42 MEDICINE	0	0	83	0	100	0	0	0	0	50	0	0	0	0	0	50	0	0	0	0	0	0	100	0	67	52
43 OPTOMETRY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44 OSTEOPATHY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45 NURSING	0	0	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	50	93
46 PATHOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
47 PHARMACOLOGY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	46
48 PHARMACY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
49 VETERINARY MEDICINE	0	0	63	0	100	100	0	0	0	0	0	100	100	0	0	0	50	0	0	0	100	0	0	100	69	63
50 OTHER BIOLOGICAL SC.	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	67	100	49
51 PUBLIC HEALTH	100	50	83	0	100	100	0	0	100	0	0	100	0	100	0	100	100	0	0	0	100	100	0	0	58	70
52 HOSP/HEALTH SERVICE A	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	60
53 PUBLIC ADMINISTRATION	0	40	64	0	100	0	100	0	100	100	0	0	0	0	0	0	0	0	0	0	30	0	60	100	40	46
54 URBAN DEVELOPMENT	0	0	60	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0	0	100	49
55 GEOGRAPHY	0	0	67	0	0	0	0	0	0	100	0	0	0	0	0	0	100	0	0	50	0	0	100	0	67	34
56 GOVERNMENT/POL. SCI.	0	33	52	0	100	0	44	0	33	25	0	0	100	0	0	100	29	100	100	0	0	33	0	50	33	35
57 HISTORY	0	0	55	0	100	67	8	0	67	0	0	67	100	0	67	29	31	83	100	0	67	100	0	59	46	37
58 INTERNATIONAL RELAT.	0	100	48	0	67	71	40	0	58	75	100	50	100	0	100	0	0	0	0	0	100	0	0	50	18	43
59 LAW	0	0	91	0	0	0	100	0	100	0	100	0	0	0	0	0	38	0	0	0	0	100	0	33	100	46
60 INDUST. REL/PERSONNEL	0	100	50	0	100	100	0	0	100	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	51
61 BUSINESS & COMMERCE	0	33	53	0	0	0	0	0	50	0	0	0	0	100	0	0	0	100	0	0	0	0	100	50	40	38
62 ECONOMICS	0	0	0	0	100	0	67	0	0	0	0	0	0	0	100	0	20	0	0	0	0	0	50	50	47	34
63 AMERICAN STUDIES	0	0	61	0	0	0	0	0	0	0	0	0	0	0	100	0	0	75	0	0	50	100	100	100	100	57
64 ANTHROPOLOGY	0	0	65	0	67	0	100	0	100	100	100	100	50	100	100	50	33	100	0	83	100	100	50	83	50	64

Only 8% of all examinees planning a doctorate in aeronautical engineering were female.

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STUDENT FLOW FROM UNDERGRADUATE MAJORS (COLUMNS) TO GRADUATE FIELD OF INTEREST (ROWS)
(CONTINUED FROM PREVIOUS PAGE)
PERCENT OF FEMALE STUDENTS
1987

UNDERGRADUATE MAJORS ARE NUMBERED TO CORRESPOND TO GRADUATE FIELDS ON LEFT

	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
65 SOCIOLOGY	0	100	55	0	0	0	0	0	100	0	0	50	100	0	0	67	0	0	0	0	67	100	50	0	45	58
66 SOCIAL WORK	100	100	87	0	100	100	0	0	50	0	0	0	0	100	0	33	29	50	0	0	100	100	100	100	98	75
67 EDUC. PSYCHOLOGY	86	92	58	0	100	100	0	0	75	0	0	0	0	100	0	60	43	0	0	0	100	67	77	60	75	71
68 PSYCHOLOGY	88	83	69	0	82	83	100	0	88	100	0	50	67	67	86	20	34	92	33	0	74	76	60	79	72	67
69 SOCIAL PSYCHOLOGY	0	0	100	0	0	0	0	0	100	0	0	0	0	0	0	50	100	0	0	0	0	100	100	0	40	60
70 COMMUNICATIONS	0	39	74	0	100	100	0	0	100	0	0	0	100	0	0	0	33	0	0	0	50	50	0	50	27	55
71 JOURNALISM	0	100	77	0	100	0	0	0	100	0	0	0	0	100	0	0	100	100	0	0	50	100	0	100	100	66
72 LIBRARY SCIENCE	0	100	82	0	50	100	0	0	100	0	0	0	0	100	0	0	50	100	0	0	67	80	57	17	100	69
73 OTHER SOCIAL SCIENCE	100	33	53	0	50	0	100	0	75	0	0	50	0	0	0	33	33	0	0	0	100	0	100	50	80	58
74 EDUCATION	100	69	76	0	77	60	75	0	76	100	0	43	100	50	20	21	38	80	0	0	68	47	55	82	68	68
75 EDUCATIONAL ADMIN.	50	71	72	0	82	100	100	0	50	0	0	50	100	0	33	29	7	100	0	0	58	57	50	75	37	51
76 PHYSICAL EDUCATION	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	50	46
77 GUIDANCE & COUNSELING	62	43	77	0	50	100	0	0	50	0	0	0	0	50	100	15	33	0	0	0	25	100	82	60	58	63
78 SPEECH	0	81	69	0	50	0	0	0	0	0	0	100	0	100	100	0	0	0	0	0	0	67	100	67	100	80
79 ENGLISH	0	75	61	0	80	33	50	0	50	0	0	50	100	60	73	33	30	100	0	100	89	72	80	63	47	61
80 ITALIAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 FRENCH	0	0	50	0	60	100	0	0	0	0	0	0	0	0	0	0	100	0	0	0	100	0	0	100	100	61
82 GERMAN	0	0	0	0	100	52	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	100	100	100	0	54
83 RUSSIAN	0	0	83	0	100	0	56	0	100	0	0	0	0	0	100	0	0	0	0	0	0	0	0	50	0	54
84 SLAVIC STUDIES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85 SPANISH	0	0	100	0	50	0	0	0	69	0	0	0	100	0	50	0	100	0	0	0	100	0	0	100	0	66
86 FAR EASTERN LANG.	0	0	75	0	0	0	100	0	0	42	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	39
87 NEAR EASTERN LANG.	0	0	0	0	50	0	100	0	0	0	39	0	0	0	0	0	0	0	0	50	0	0	0	0	0	29
88 CLASSICAL LANGUAGE	0	0	86	0	0	0	0	0	0	0	0	51	0	0	0	40	17	0	0	100	0	0	0	0	50	48
89 OTHER FOREIGN LANG.	0	0	83	0	100	100	0	0	75	0	0	50	63	0	0	0	0	100	0	0	0	0	0	0	100	66
90 LINGUISTICS	0	0	61	0	70	71	71	0	88	0	0	25	100	62	50	25	67	0	0	0	50	100	50	60	100	62
91 COMPARATIVE LIT.	0	100	70	0	93	67	80	0	80	0	100	50	100	50	81	100	0	75	0	0	0	33	50	36	100	72
92 RELIG. STUDIES/RELIG.	100	17	42	0	0	50	50	0	71	50	40	18	0	0	0	24	9	0	100	0	63	50	31	21	43	27
93 PHILOSOPHY	0	0	44	0	0	0	0	0	0	0	0	0	0	100	0	13	28	0	0	0	25	0	67	25	43	28
94 ART HISTORY	0	100	84	0	100	100	100	0	100	67	0	100	50	0	100	0	25	80	50	100	77	100	67	69	67	78
95 ARCHITECTURE	0	0	100	0	100	100	0	0	0	0	0	0	0	0	0	0	0	33	27	100	50	0	50	0	25	36
96 ARCHAEOLOGY	0	0	100	0	0	0	0	0	0	100	50	80	0	0	0	17	0	80	100	54	100	0	0	50	50	57
97 FINE ARTS, ART DESIGN	0	0	43	0	0	0	0	0	0	0	0	0	0	0	100	0	100	33	0	0	59	0	100	100	0	59
98 DRAMATIC ARTS	0	20	28	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	75	52	50	50	50	50
99 MUSIC	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	100	43	100	33	42
100 OTHER HUMANITIES	0	0	63	0	0	0	100	0	100	0	0	33	0	0	25	100	29	60	0	0	57	100	100	74	57	63
101 OTHER	100	33	68	0	75	0	0	0	50	0	0	67	50	50	100	20	38	100	0	75	60	80	50	83	50	51
102 TOTAL	71	73	63	0	70	57	54	0	70	44	49	50	69	61	71	24	27	77	27	59	68	59	46	62	53	50

Half of all examinees planning to earn a doctorate were female.

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Appendix D

File Names of Matrices

File Name and File Location	Population Included	Variables
TJJ6600.GREDBASE.DATA78 TJJ6600.GREDBASE.DATA80 TJJ6600.GREDBASE.DATA81 to ..... .DATA87 On K36891 (exp. Dec. 1994)	U.S. citizen GRE-takers with ugrad. and grad. majors. A stripped-down, 39-character file for each year. These are the raw data used to create tables.	GRE scores and B.Q. responses
TJJ6600.GREDBASE.AGEADV78 TJJ6600.GREDBASE.AGEADV80 TJJ6600.GREDBASE.AGEADV81 to .... .AGEADV87 On K16992 (exp. July 1996)	U.S. citizen GRE-takers with ugrad. and grad. majors. Matrices are 102 x 102 for each of the specific majors plus marginals. Populations are total and male, female and doctorate.	Mean age N over 30 N aspire to doctorate
NJT6600.BIGTAB.Y78TO87 On K05318 (exp. July 1996)	All U.S. citizens with GRE scores and specified graduate and under-graduate majors. Data are arranged by years 1978 to 1987 within variable. A 102 x 102 matrix.	Counts GRE-Verbal mean GRE-Quant. mean GRE-Analyt. mean % Black % Hispanic % Asian American
NJT6600.SHORTTAB.Y78TO87 On K05318 (exp. July 1996)	All U.S. citizens with GRE scores and specified graduate and under-graduate majors. Data are arranged by year 1978 to 1987 within variable. An 11 x 11 table of broad major categories.	Counts GRE-V mean GRE-Q mean GRE-A mean N Black N Hispanic N Asian N Male N Female % Black % Hispanic % Asian % Male % Female
All of the following files also reside on K05318 and are prefaced by NJT6600.		
SHORTFEM.Y78TO87	Females with above characteristics for years 1978 to 1987.	Each year within same 14 variables.
SHORTMAL.Y78TO87	Males with above characteristics for years 1978 to 1987.	Each year within same 14 variables.
SHORTABD.Y78TO87	Doctoral candidates with above characteristics for 1978 to 1987.	Each year within same 14 variables.
SHORTFEM.Y78TO87D	Female doctoral candidates.	Each year within same 14 variables.

SHORTMAL.Y78TO87	Male doctoral candidates.	Each year within same 14 variables.
MOMTABLE.Y78TO87	All U.S. citizens with GRE scores and specified graduate and undergraduate majors, 1978 to 1987.	N fathers B.A. N fathers grad. N mothers B.A. N mothers grad. N examinees > 30 % fathers B.A. % fathers grad. % mothers B.A. % mothers grad. % examinees > 30 Mean GPA in major Mean GPA last 2 yr
MOMFEM.Y78TO87	Females with above characteristics.	Same 13 variables.
MOMMAL.Y78TO87	Males with above characteristics.	Same 13 variables.
TOTALMAT.Y78TO87	All U.S. citizens with above characteristics. (Used for trend tables)	Counts % of total % female % Black % Hispanic % Asian American % pursuing Ph.D. % older than 30 GRE Verbal Mean GRE Quant. Mean GRE Analyt. Mean
TOTALFEM.Y78TO87	Females with above characteristics. (Used for trend tables).	Above 11 variables.
TOTALMAL.Y78TO87	Males with above characteristics. (Used for trend tables).	Above 11 variables.

Appendix E

Broad Major Field Definitions

Broad Major Field Definitions

I. Arts/Humanities

79 English
80 Italian
81 French
82 German
83 Russian
84 Slavic Studies
85 Spanish
86 Far Eastern Languages
87 Near Eastern Languages
88 Classical Languages
89 Other Foreign Languages
90 Linguistics
91 Comparative Literature
92 Religious Studies
93 Philosophy
94 Art History
95 Architecture
96 Archaeology
97 Fine Arts/Design
98 Dramatic Arts
99 Music
100 Other Humanities

II. Physical Sciences/Mathematics

1 Mathematics
2 Applied Mathematics
3 Statistics
4 Physics
5 Astronomy
6 Geology
7 Oceanography
8 Chemistry
9 Computer Science
10 Metallurgy
11 Other Phys Science

III. Engineering

12 Engineering, Aerospace
13 Engineering, Chemical
14 Engineering, Civil
15 Engineering, Electrical
16 Engineering, Industrial
17 Engineering, Mechanical
18 Engineering, Other

IV. Biological Sciences

19 Biology
20 Biochemistry
21 Biophysics
22 Botany
23 Genetics
24 Zoology
27 Microbiology
28 Parasitology
29 Physiology
30 Molecular/Cell Biology
50 Other Biological Science

V. Applied Biological/Environmental Sciences

25 Entomology
32 Agriculture
33 Mining
34 Forestry
35 Environmental Science

VI. Social Sciences

54 Urban Development
55 Geography
56 Govt/Political Science
57 History
58 International Relations
62 Economics
63 American Studies
64 Anthropology
65 Sociology
68 Psychology
69 Social Psychology
73 Other Social Science

VII. Applied Social Sciences

66 Social Work
70 Communications
71 Journalism
72 Library Science

VIII. Health Sciences/Services

26 Anatomy
31 Bacteriology
36 Audiology
37 Physical Therapy
38 Occupational Therapy
39 Nutrition
40 Home Economics
41 Dentistry
42 Medicine
43 Optometry
44 Osteopathy
45 Nursing
46 Pathology
47 Pharmacology
48 Pharmacy
49 Veterinary Medicine

IX. Education

67 Educational Psychology
74 Education
75 Education Administration
76 Physical Education
77 Guidance/Counseling
78 Speech

X. Business/Public Administration

51 Public Health
52 Hospital/Health Admin
53 Public Administration
59 Law
60 Industrial Relations/Personnel
61 Business/Commerce

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